

THE JOURNAL

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

VOL. 35

AUGUST, 1936

No. 8

OPERATIVE TREATMENT OF GASTRIC AND DUODENAL ULCER: PHYSIOLOGIC AND PATHOLOGIC PRINCIPLES INFLUENCING THE TYPE OF PROCEDURE*

WALTMAN WALTERS, M.D.

Division of Surgery, The Mayo Clinic
ROCHESTER, MINNESOTA

I have been asked to report experience at The Mayo Clinic in the surgical treatment of peptic ulcer, with particular reference to the ultimate effect of the various surgical procedures; that is, suturing, gastro-enterostomy, pyloroplasty, and partial gastrectomy. In order to cover this rather large assignment in the time available, it will be possible to emphasize only those points which seem to be of greatest importance. If one is to attempt to evaluate results from a statistical report, understanding of the etiologic, pathologic, and clinical features of gastric and duodenal ulcer is necessary, so that the reason for the choice of one of several operative procedures is understood.

I might illustrate by reference to cases of perforated duodenal ulcer in which leakage into the abdominal cavity has occurred and which all physicians recognize as constituting surgical emergencies. Immediate closure of the perforation is of paramount importance. Whether the perforation is closed as a part of the operation of gastroduodenostomy (gastric resection), or whether it is combined with gastro-enterostomy is dependent on the condition of the patient, the degree of general peritonitis present and the experience of the surgeon. Obviously the opening must be closed and inexperienced surgeons and many of the most experienced surgeons are content with closure of the perforation. Others feel, and demonstrate by statistics, that an operation of the magnitude of gastric resection can be carried out in cases in

which the perforation is of short duration at a risk that is but little greater than that of simple closure and gastro-enterostomy. Happily there continues to be disagreement with this opinion.

The decision as to whether gastro-enterostomy or pyloroplasty should be done at the time of closure of the perforation will vary according to the size of the lesion, the effect of its closure in producing obstruction of the duodenum and whether its removal can be safely combined with reconstruction of the pyloric outlet. The point which I wish to make is this: regardless of the etiologic factors in the development of perforating ulcer in these cases, regardless of the method of surgical treatment selected, saving the life of the patient is the immediate object.

After performance of a very difficult, tedious operation before some foreign visitors, W. J. Mayo concluded his remarks by saying that he hoped a hernia would develop. The point was that the patient must

*Read before the Medical Section of the American Life Convention, White Sulphur Springs, Virginia, June 11 to 13, 1936; also read before the Providence Hospital Interne Alumni Association, Detroit, Michigan, June 9, 1936.

recover from the essential operation even at the expense of the development of a hernia, for the hernia could be repaired safely at a later time.

I think the general experience of most surgeons, following simple closure of a perforating duodenal ulcer, is that 60 per cent of patients are relieved of their symptoms. With the remainder, indiscretions in habits of living seem to be a large factor in their dyspepsia. If, however, symptoms of obstruction or hemorrhage occur, secondary operation may be required, and the type of operation to be preferred will be discussed in detail when considering the selection of operations for duodenal ulcer.

Gastric Ulcer

I should like to depart abruptly from further discussion of duodenal ulcer in order to turn to a consideration of gastric ulcer, which I believe is of greater importance, although it occurs much less frequently than does duodenal ulcer. For reasons which are probably obvious, but which I hope will be made convincing in the following remarks, the physician always should determine whether a "peptic ulcer" is in the stomach or duodenum. Both pathologically and biologically the lesions differ: pathologically, because ulcerating lesions of the stomach, with all of the clinical characteristics of a benign lesion, may be malignant, whereas ulcerating lesions of the first portion of the duodenum are never malignant; biologically they differ in their response to various surgical procedures, particularly in relation to reduction of acidity and to the incidence of recurring ulceration. Regardless of the type of operation performed for benign gastric ulcer, if in the course of the procedure the lesion is removed and a method is afforded for the stomach to empty rapidly, the gastric ulcer practically never recurs. If chemical analysis for gastric acids discloses uniform reduction of hydrochloric acid to minimal figures, one of the prerequisites for a satisfactory result in the surgical treatment of either gastric or duodenal ulcer has been met. The fear of malignancy developing in an ulcerating gastric lesion is well founded and I do not believe sufficient importance has been accorded the possibility. Among several hundred patients who were operated on at The Mayo Clinic for malignant lesions of the stomach, many gave histories identical with that

which is associated with benign ulcer of the duodenum and many of these patients had been under a medical regimen for many months elsewhere without a roentgenologic examination ever having been made to determine the situation of the ulcer. I think this is a point which is well worth emphasizing: a medical regimen should not be prescribed for any patient who has what seems to be a duodenal ulcer without a roentgenologic or a fluoroscopic examination being made to exclude the possibility that the lesion is an intragastric one; if it is intragastric the possibility of malignancy should be suspected. It is true that probably from 15 to 20 per cent of gastric ulcers may become malignant but, at the same time, statistics are not available to show the number of early ulcerating carcinomas which start with a history suggestive of a benign lesion. For this reason, even though, under a medical regimen, ulcerating lesions of the stomach seem to disappear as far as fluoroscopic examination will disclose, and the patient's symptoms are relieved, and blood disappears from the stools, the patient should be examined every three months the first year and every six months the second, to make sure that recurrence has not taken place. At the clinic we have seen gastric lesions appear to have healed, only later to recur, and when the patient was operated on the lesion occasionally proved to be malignant.

I believe it would be a good plan if physical examination of every patient more than forty years of age included roentgenologic examination of the stomach, duodenum, and colon, particularly (1) if the patient has persistent or intermittent dyspepsia or (2) if there is a family history of cancer. This would make possible determination of the presence of small carcinomatous gastric lesions in their early stages. If progress is to be made in the treatment of carcinoma of the stomach, methods must be established which will permit earlier recognition of the lesion so that it can be removed while the process is still local. Therefore, the preferable operation in the treatment of ulcerating gastric lesions is obviously removal of the lesion and of as much of the adjacent tissue as is possible within reason, including possible areas of extension of the gastric lesion into the gastric wall and possible metastatic lesions in the lymph nodes of the omentum. This particularly applies to the large gastric

ulcer with a crater of 2 cm. or more in diameter. Excision of a benign gastric ulcer, combined with gastro-enterostomy, is an excellent operation providing the ulcer can be proved microscopically to be benign. This operation is usually a safe one for the surgeon who has average experience in intra-abdominal surgery. As was previously mentioned, recurring ulcers in such cases are exceedingly rare. Certain large, inaccessible gastric ulcers, particularly those high on the posterior wall or on the lesser curvature, removal of which would carry an unusually high risk because of their size and situation, have been demonstrated to heal after gastro-enterostomy. The explanation for this probably lies in the neutralization of gastric acidity and the rapid emptying of the stomach resulting from this operation.

Duodenal Ulcer

I reserve for last and detailed discussion the question of duodenal ulcer. I think it is one of the outstanding problems with which members of the medical profession have to deal today. Evaluation of results is difficult because of the variety of viewpoints relative to the best method of surgical treatment when such treatment is indicated and the factor that is most important in producing this difficulty is that the etiology of ulceration is not clear. That gastric secretion, namely hydrochloric acid, acting on abnormal intestinal tissue will produce ulceration has been proved experimentally by Mann¹⁴ and by others,⁶ and that individual susceptibility of tissue to acid secretion is variable is evident. What may be an effective method of surgical treatment for ulcer of the duodenum as it affects one group of patients may have either better or less satisfactory results in treatment of a different group of individuals.

In a recent number of the *Journal of the American Medical Association*⁴ the importance of geomedical knowledge was emphasized by Schittenhelm, the Munich internist, who, gathering data from various parts of Germany, emphasized the fact that diseases frequently present different characteristics even in localities where they first appear. I quote a few sentences from his report: "Apoplexy, atherosclerosis, and thrombosis are more frequent at Basel than at Kiel. Gastric and biliary disorders likewise present distinct regional differences." In study-

ing the pathologic differences between ulcers of the duodenum and of the stomach of German patients, as contrasted with those of American patients operated upon at The Mayo Clinic, my colleague, Snell, and I^{5,18,19} found that among German patients a very high percentage of various types of gastritis was associated with duodenal ulcer but that gastritis was observed but rarely among patients operated on at The Mayo Clinic. This observation was confined by Sebening^{17,21} of Frankfurt am Main. One of the reasons for the German surgeon's advocacy of resecting a portion of the stomach in addition to the portion of the duodenum containing the ulcer is to remove these areas of gastritis, but obviously this reason does not apply to patients on whom we were operating. The factor of gastric acidity, however, in cases of duodenal ulcer, is of paramount importance and, regardless of the method of treatment of duodenal ulcer, reduction of this gastric acidity and increase in the rapidity with which the stomach empties are objects to be sought.

Medically these objects are accomplished by rest, a liquid diet, and frequent feedings of milk, cream and alkalis. Surgically they are accomplished by removing the pyloric sphincteric mechanism and thus increasing the rapidity of emptying of the stomach. Whether the operation is pyloroplasty, gastro-duodenostomy, gastro-enterostomy, or gastric resection, partial or complete neutralization of gastric acids following such procedures is dependent, for the most part, on regurgitation of alkaline secretion from the intestine into the stomach. Reduction of hydrochloric acid to zero is not necessary to obtain an excellent clinical result nor does failure to obtain complete neutralization mean that the patient is likely to have a recurrent ulcer. Statistics on a large series of cases at The Mayo Clinic,² and at the clinics of Wilkie²² in Edinburgh, Moynihan¹⁵ in Leeds, and Gosset⁸ in Paris, show that when the operation is based on chronicity and failure of the patient to get well on adequate medical treatment, the incidence of gastrojejunal ulcer is not greater than 5 per cent if the gastro-enteric anastomosis continues to function well. In the clinics of many of the German surgeons, particularly those of Lorenz,¹³ Haberer,⁹ and Finsterer,⁷ who were the originators of the idea of routine resection of the stomach for duodenal ulcer, the percentage of recur-

ring ulcers reported in their series of cases in which gastro-enterostomy had been performed was approximately 10 per cent. I mention this to reemphasize the fact that recurrence of ulceration following a surgical procedure for duodenal ulcer, although intimately concerned with the presence or absence of hydrochloric acid in the gastric secretion, is likewise dependent on tissue resistance and other unknown factors.

Detailed studies have been made of gastric acidity before, and subsequent to, operation in 150 cases in which I operated for gastric or duodenal ulcer in the past year and a half at The Mayo Clinic.²⁰ The most marked reduction of gastric acidity occurred in cases in which the Polya type of gastric resection was performed, providing an entero-anastomosis which would have decreased the dilution of gastric acidity was not made between loops of jejunum. Next in order in producing reduction of gastric acidity were those cases in which the Billroth I type of gastric resection and anastomosis was performed, that is, following the resection, direct union was effected between the remainder of the stomach and the duodenum. Next followed posterior gastro-enterostomy, then pyloroplasty, and finally anterior gastro-enterostomy in which entero-anastomosis had been made. A few years ago¹⁶ it was the opinion of the advocates of routine gastric resection for duodenal ulcer that failure to obtain achlorhydria was attributable to the fact that an insufficient amount of stomach had been removed and that achlorhydria could be obtained in all cases in which two-thirds, or most, of the stomach had been removed. With greater experience these same observers found that, in spite of extensive gastric resection for duodenal ulcer, relative achlorhydria resulted in only about 50 per cent of the cases.¹² This point I wish to emphasize because, as will be shown, the risk of gastric resection for gastric and duodenal ulcer is several times greater than that of the conservative procedures of gastro-enterostomy and pyloroplasty.

The mortality of gastric resection has been reported as from 7 to 10 per cent if the duodenal ulcer is removed in the performance of gastric resection, and in some instances in which the duodenal ulcer is of large size and perforating, the mortality has been reported to exceed 10 per cent. It is to be borne in mind that a surgical proce-

dures of this magnitude is followed by relative achlorhydria in only 50 per cent of cases and that in forty-seven such cases reported from one American clinic, in which achlorhydria did not follow partial gastrectomy, recurring ulceration was noted in nine cases.³ Not only does relative achlorhydria occur with some degree of frequency following gastro-enterostomy, but also following gastroduodenostomy and pyloroplasty, the decrease in acidity which occurs sometimes equaling that which occurs in some cases following gastric resection. The mortality of gastro-enterostomy or pyloroplasty, in the hands of surgeons experienced in gastric surgery, should not exceed more than 1.5 to 2 per cent.^{1,11} It has been stated that to obtain relative achlorhydria, regardless of the surgical procedure used, is the most effective means of preventing development of recurring ulcer. Although this can be assumed to be true in most cases, there are exceptions, even when relative achlorhydria is obtained after gastric resection of the Billroth I type. I believe partial gastrectomy and duodenectomy have a definite place in certain cases of recurring duodenal ulcer, hemorrhagic duodenal ulcer, and cases in which multiple ulcerations of the stomach coexist with ulceration of the duodenum. Although the problem is still under investigation, I have the impression that following operations for recurring ulcer, if partial gastrectomy is performed, relative achlorhydria is likely to occur in practically all cases providing gastric dilution is not interfered with by entero-anastomosis. Assurance of a low operative risk in the treatment of most duodenal ulcers seems to me a point in favor of the conservative type of operation. A further argument in favor of gastro-enterostomy is that should ulceration recur at the anastomosis, or should the anastomosis not function properly, it can always be taken down and, in many such cases, unless obstruction has occurred in the gastro-enteric stoma, the old duodenal ulcer will be found to have healed completely. If in healing the duodenal ulcer has narrowed the lumen of the duodenum sufficiently to produce disturbances of motility and to interfere with emptying of the stomach, it is true that recurrent duodenal ulceration may be found. This, therefore, should be prevented by the performance of either a surgical procedure to increase the size of the outlet of the stomach or by gastric re-

section if the condition of the patient permits.

Having successfully accomplished partial gastrectomy and duodenectomy in the removal of a duodenal ulcer, it cannot be assumed in every case that complete relief of symptoms will always result. From many of the German clinics it is reported that approximately 80 per cent of patients are completely relieved of symptoms following partial gastrectomy. Failure to obtain relief in the additional 20 per cent of cases has been attributed, and proved on gastroscopic examination, to be the result of persistent gastritis in the remaining segment of the stomach.¹⁰ In several large groups of patients operated on at the clinic for duodenal ulcer, in which cases gastro-enterostomy was performed by Balfour, it was found that the results parallel those of gastric resection. Only cases in which a lapse of ten years had occurred subsequent to operation were included in the study.^{1,3} The possibility of development of anemia following extensive gastric resection, I think, always should be borne in mind. It is true that cases of this type are reported relatively uncommonly. On the other hand, the loss of a considerable amount of stomach and the effect of such a loss on digestion, blood formation, and physiology in general have not been thoroughly worked out.

Summary

In summary it may be said that in a case of peptic ulcer it should be determined whether the ulcer is in the stomach or the duodenum for ulcers in these two situations differ both biologically and pathologically. If a lesion is in the stomach, the possibility of malignancy should ever be kept in mind and hence removal of all persisting ulcerating gastric lesions is desirable. The effect of various surgical procedures in the treatment of gastric and duodenal ulcers is quite different. In general, removal of a benign gastric ulcer is rarely followed by recurrence of ulceration providing means are afforded for more rapid emptying of the stomach, and providing studies of gastric acidity reveal marked decrease of hydrochloric acid subsequent to operation. As for duodenal ulcer, recurring ulceration in all situations has occurred at The Mayo Clinic in less than 5 per cent of cases. Post-operative studies disclose reduction in acidity following gastro-enterostomy and fol-

lowing pyloroplasty. The greatest degree of reduction occurs following gastric resection. The results following any surgical procedure for duodenal ulcer depend on providing a method for more rapid emptying of the stomach as well as for neutralization of gastric acidity by the alkaline intestinal secretions. The mortality of gastro-enterostomy and of pyloroplasty in the hands of experienced surgeons is approximately from 1 to 1.5 per cent, whereas reports in the literature would indicate that partial gastrectomy in the hands of equally able surgeons reveals a mortality varying from 7 to 15 per cent, depending on the size and the degree of penetration of the ulcer and providing the ulcer is removed in the course of gastric resection. That the decrease in acidity following operations for duodenal ulcer is attributable, in part, to dilution of the gastric secretion by the intestinal secretion, is shown by the fact that when an anastomotic opening is made between the loop of jejunum, preventing in part the reflux of intestinal secretion into the stomach, gastric acidity undergoes but little change in many cases whether the operation is gastro-enterostomy or partial gastrectomy of the Polya type. Pathologically the lesions associated with duodenal ulcer differ greatly in different countries and among patients of different races. In Germany a marked degree of gastritis has been shown to occur in association with duodenal ulcer. In these cases the lesion usually is in an advanced state and is frequently complicated by obstruction which may explain the high degree of gastritis reported from the Central European Clinics. In similar fashion the incidence of gastritis has been emphasized by workers in one of the eastern clinics. Such gastritis has been found in relatively few patients operated on at The Mayo Clinic. It must be assumed, therefore, that in discussion of the choice of operation, the type of lesion and the reactions of the patients who are subjected to surgical procedures must be taken into consideration. Further, the conservative operations of gastro-enterostomy or gastroduodenostomy, performed in some parts of the United States and in some foreign countries, may be followed with results equally as good as those which follow gastric resection applied to patients of other races, living under different geographical conditions, who when subjected to conservative operations have given

greater evidence of recurring ulceration than might have been expected.

Bibliography

1. Balfour, D. C.: The management of lesions of the stomach and duodenum complicated by hemorrhage. *Jour. Am. Med. Assn.*, 89:1656-1660, (Nov. 12) 1927.
2. Balfour, D. C.: Results of gastro-enterostomy for ulcer of the duodenum and stomach. *Ann. Surg.*, 92:558-562, (October) 1930.
3. Berg, A. A.: A report of the end-results of subtotal gastrectomy for the radical cure of gastric and duodenal ulcer. *Tr. Am. Gastro-Enterol. Assn.*, (1933) 36:226-232, 1934.
4. Berlin correspondent: The importance of geomedical knowledge. *Jour. Am. Med. Assn.*, 106:1106-1107, (March 28) 1936.
5. Church, G. T., Walters, Waltman, and Wellbrock, W. L. A.: Pyloric obstruction producing gastritis. *Proc. Staff Meet., Mayo Clinic*, 9:259-260, (May 2) 1934.
6. Dragstedt, L. R.: Some physiologic principles involved in the surgical treatment of gastric and duodenal ulcer. *Ann. Surg.*, 102:563-580, (October) 1935.
7. Finsterer, H.: Die chirurgische Behandlung des Magen- und Zwölffingerdarmgeschwürs und seiner Komplikationen. *Ergebn. d. ges. Med.*, 15:431-566, 1931.
8. Gosset: Personal communication to the author.
9. Haberer, H.: Quoted by Louria, H. W.: The surgical treatment of gastric and duodenal ulcer. *Surg., Gynec. and Obst.*, 47:493-502, (October) 1928.
10. Henning, Norbert: Die Gastritis des operierten Magens. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 42:401-408, 1931.
11. Judd, E. S., and Phillips, J. R.: Pyloroplasty: its place in the treatment of peptic ulcer. *Ann. Surg.*, 100:196-201, (July) 1934.
12. Klein, Eugene, Aschner, P. W., and Crohn, B. B.: The end-results of partial gastrectomy for primary gastric and duodenal ulcers: studies in pre- and post-operative gastric secretion. *Tr. Am. Gastro-Enterol. Assn.*, (1933) 36:197-205, 1934.
13. Lorenz, Hans, and Schur, Heinrich: Unsere Erfahrungen über den Wert der Antrumresektion bei der Behandlung des Ulcus pepticum. *Arch. f. klin. Chir.*, 119:239-276, 1922.
14. Mann, F. C., and Williamson, C. S.: Experimental production of peptic ulcer. *Ann. Surg.*, 77:409-422, (April) 1923.
15. Moynihan, B.: Lloyd Roberts lecture on some problems in gastric surgery. *Brit. Med. Jour.*, 2:1020-1026, (Dec. 8) 1928.
16. Reid, J. S.: The acidity and motility of the stomach before and after operations for peptic ulcer. Unpublished thesis, 1926.
17. Sebening, Walter: Why partial gastric resection is preferred for peptic ulcer in Germany. *Proc. Staff Meet., Mayo Clinic*, 7:139-142, (Mar. 9) 1932.
18. Walters, Waltman: Recent developments in the treatment of gastric lesions. *Surg., Gynec. and Obst.*, 55:355-359, (September) 1932.
19. Walters, Waltman: The choice of surgical procedures for duodenal ulcer. *Ann. Surg.*, 96:258-268, (August) 1932.
20. Walters, Waltman: Gastric acidity following operations for gastric and duodenal ulcer. *Jour. Am. Med. Assn.*, 106:413-414, (Feb. 1) 1936.
21. Walters, Waltman, and Sebening, Walter: A comparison of the lesions associated with duodenal ulcer in Germany and in the United States. *Minnesota Med.*, 15:579-584, (September) 1932.
22. Wilkie, D. P. D.: Jejunal ulcer: some observations on its complications and their treatment. *Ann. Surg.*, 99:401-409, (March) 1934.

TETANY OF THE NEW-BORN

MYRON D. JACOBY, M.D.†

DETROIT, MICHIGAN

Up until 1931, it was very doubtful whether such a condition as tetany of the new-born existed. Textbooks failed to mention this condition as being present before the sixth week of life. Grulee² doubts the presence and von Reuss¹¹ does not believe that tetany can occur in the neonatal period. But since 1931, numerous cases have been reported describing this condition, especially by Nesbit,⁸ Shannon,¹⁰ and Kehrer.⁵

In most respects tetany occurring in other periods of life closely resembles the syndrome present in the neonatal period. This condition occurs independently of the obstetric procedure and is responsible for the cerebral manifestations. It seems that there is an edema of the brain in addition to a tendency to generalized edema and the edema of the brain is responsible for many of the symptoms usually attributed to cerebral hemorrhage and other injuries to the brain. In one case at autopsy, Shannon¹⁰ found marked edema of the brain with no evidence of hemorrhage.

The symptoms consist of extreme nervous irritability; hypertonia; convulsions, tonic and clonic; crow; edema, usually slight, over the tibia; exaggerated reflexes; and a positive Chvostek sign.

There is a marked increased sensitivity

to all sensory impressions, such as sudden noise, jarring, light. All the stimuli give rise to exaggerated responses in the form of sudden movements which vary from a forced stretching action to definite localized or generalized spasms of the general musculature. These motions are apparently painful as they are accompanied by screaming. The hypertonia presents itself as a general tenseness or spasticity of the entire musculature. The most important spasms are those of the hands and feet. The hands may be held in typical obstetric position, the fists being tightly clenched or the fingers rigidly extended and spread. The feet may be held in rigid flexion or extreme extension. Spasm of the facial muscles may be shown in a constant grimacing or in a pouting position of the lips. Spasm of the

†Dr. Jacoby is a graduate of the Medical College of Syracuse University, class of 1923. He received his general internship at the City Hospital, New York; he was a resident on the pediatric service of Bellevue Hospital, New York, and resident on the contagious department of Herman Kiefer Hospital, Detroit. He is now connected with the pediatric service of Grace Hospital, Detroit.

extra-ocular muscles may give rise to various movements of the eyeballs, both coordinated and incoordinated. Spasms of the larynx give rise to the typical crow. Spasms may be present in various parts of the intestines, giving rise to symptoms resembling pyloro-spasm or symptoms of colic. The duration and extent of the spasms vary from slight to the most extreme. They may be precipitated by sudden disturbances of any kind. The Chvostek sign may be present, although this sign has been considered insignificant in the new-born period.⁷ The Trousseau phenomenon is difficult to elicit since usually the mere touching of the infant brings about this response.

The subcutaneous edema usually presents itself as a slight puffiness and pitting on the dorsa of the hands and feet, and scrotum in boys. The edema may be quite pronounced over the entire body. The edema may be observed by sudden jumping in weight without any demonstrable clinical edema.¹

The cerebral symptoms are the most important because they are the most grave of all the symptoms of the syndrome. They show evidence of cerebral pressure, such as slowness of the pulse when infant is perfectly quiet, cyanotic attacks, suspension of respirations for varying lengths of time, and typical generalized convulsions. These convulsions may be present without loss of consciousness, as shown by the constant screaming from the painful spasms. Projectile vomiting may be a feature. Increased intracranial pressure may be shown by tenseness of the fontanel.

Shannon¹⁰ feels that vomiting and irregularity of the intestinal motility may occur, although they have never been sufficiently striking to be convincing to him. In my own experience, cases resembling pyloro-spasm and colic in infants have been relieved by the same therapeutic procedures as given in tetany of the new-born and I feel that these types of cases should be incorporated in the subject under discussion.

In the differential diagnosis, cerebral hemorrhage, congenital heart lesions, enlarged thymus, atelectasis, and congenital deformity of the larynx and contiguous parts must be ruled out.

The blood calcium studies in the cases reported are very misleading. Howland and Marriott⁸ describe the normal level of

calcium as lying between 9 and 11 mg. per 100 c.c. It is a common belief that only when serum calcium is reduced to about 7 mg. per 100 c.c. will typical spells of tetany appear.⁸ More recent studies of Jones⁴ reveal that the plasma-calcium in 22 infants from four hours to twelve days old averaged 12.3 mg. Nohlen⁹ found 12.6 mg. in new-born infants. From this it appears that serum calcium during the neonatal period is higher than in childhood or adult life. It is easy to conceive then that a serum calcium of 10 or 11 mg. in a new-born infant can be considered as being below the normal level. It is likely, however, that the factor that determines the development of tetanic manifestations in new-born infants probably is not the level of the serum calcium but rather the amount of diffusible calcium available. Liu⁶ found that this portion may be low even in the cases of relatively high total serum calcium. He also demonstrated that parathyroid extract and other measures employed in controlling tetany produced an increase in diffusible calcium that was out of proportion to the total rise.

Shannon¹⁰ explains that the lowered ionic calcium is directly due to alkalosis and not to any diminished function of the parathyroid glands.

The treatment is fairly simple. Calcium is the specific for this disease complex. It is most effective when injected intravenously, but due to the difficulty of intravenous procedures in the new-born infants, the somewhat less effective method of injection of a 10 per cent solution of calcium gluconate intramuscularly is used. As much as 10 c.c. can be given repeatedly without bad local effects. Calcium gluconate by mouth in powdered form up to 60 gr. a day is used after the acute symptoms are relieved. Some form of vitamin D should be given as soon as possible to increase the utilization of the calcium given by mouth. Cod liver oil, viosterol, either alone or with halibut oil, is given, though its immediate value may be questioned. Parathyroid extract-Collip is invaluable. While its effects are less prompt than those following injection of calcium, they are sure and sustained, especially in raising the ionized portion of blood calcium. From 0.3 c.c. to 1.5 c.c. is the usual dose. The removal of spinal fluid is indicated to relieve intracranial pressure.

Conclusions

There occurs not infrequently in the new-born infant a syndrome typical of tetany in childhood and adult life. This syndrome occurs as a result of some interference with calcium metabolism resulting in lowered ionic calcium content of the blood and tissues.

Case Histories

Case 1.—Baby T., born January 15, 1935, following easy labor, was normal at birth, weighing 7 lb. 5 oz. Father and mother are living and well, and there are two other children. For the first six days, the infant seemed to be getting along very well, taking breast and complementary feeding, which it retained. On the sixth day, it developed a series of convulsions, some of them being generalized and some localized; sometimes involving one side, sometimes the other. These convulsions lasted for two days. On the seventh day (that is, one day after convulsions started) diarrhea set in, which lasted for twelve days. Infant was having from ten to twelve bowel movements per day—loose, green; but no mucus and no blood. Paregoric and milk of bismuth was given continuously but apparently with no benefit. The diarrhea suddenly stopped and the infant was sent home. Two days afterward, convulsions set in again, coming on about every hour. The character of these convulsions was the same as previously noted. I saw the baby for the first time in consultation on the following day, and he presented the following picture: A tall, thin baby, weighing 7 lb. 2 oz. (three ounces less than birth weight) with generalized hypertonia. Extremities were quite spastic, as shown by passive resistance to manipulations. Infant cried almost continuously. A slight jarring or sudden noise seemed to provoke a spasm. The Chvostek sign was present. Trousseau's phenomenon could not be elicited because of the spastic condition. A dermatographia and increased knee jerks were present. The spinal tap revealed a normal fluid under increased pressure with normal cell count, and nothing abnormal chemically. Blood calcium was not taken.

Infant was given 10 c.c. of a 10 per cent solution of calcium gluconate and parathyroid extract-Collip, $\frac{1}{2}$ c.c. intramuscularly. The convulsions ceased immediately and the hypertonia disappeared in about one week. Infant was placed on evaporated milk formula and four days after my initial consultation put on haliver oil and viosterol, 20 mm. once a day. Ten days after my initial visit, calcium gluconate, 40 gr. by mouth daily, was instituted. The infant took its formula well, started gaining in weight almost immediately and on February 24, thirteen days after first seen, weighed 8 lbs. 4 oz., making a gain of 1 lb. 2 oz. in two weeks. The calcium by mouth was discontinued after two weeks and nothing abnormal set in. Infant developed normally and I last saw him at the age of six months. At this time he was 27 inches long, weighed 16 lbs. 4 oz., was taking food well, and, to all intents and purposes, was a normal infant of that age.

The exceedingly interesting point about this case is that convulsions stopped when an acidotic condition set in, due to the diarrhea, and when the diarrhea cleared up, the tetanic manifestations became evident again. This manifestation apparently cleared up rapidly once suitable medication was started.

Case 2.—Baby H. was delivered at home on April 15, 1935, and was apparently normal at birth, fol-

lowing an easy delivery. This was the first baby; father was well, but mother was nervous during pregnancy and seemed to show some evidence of insufficient calcium, although cod liver oil was given during the latter months of pregnancy. On the third day after delivery, generalized convulsions with cyanosis set in. These came on an average of every hour. I was called in about twelve hours after onset of symptoms and infant presented the following picture: An apparently well formed new-born with generalized hypertonia as evidenced by resistance to passive motion. A positive Chvostek, increased but equal knee jerks, no bulging of the fontanel, positive dermatographia, a slight edema of the dorsæ of the feet. The rest of the examination was negative.

A spinal puncture was done immediately and showed no evidence of intracranial bleeding. No blood calcium was taken. Infant was started on calcium gluconate, 10 c.c. of 10 per cent solution and 0.5 c.c. parathyroid extract-Collip intramuscularly. For a period of three months, the tetanic manifestations would return if the medication was stopped for varying periods of time. But eventually, when the infant was five months old, the condition cleared up entirely.

The main point of interest in this case was that medication had to be supplied for such an unusual length of time. With the suggestive family history and with the exceedingly long duration of symptoms, I feel that this was a true case of parathyroid deficiency.

Case 3.—Baby E., aged fifteen days, was seen on January 10, 1935. Family history was unimportant. Labor was normal. The birth weight was 7 lbs. 9 oz. The infant was seen by me in consultation because it had fretted and vomited since birth. Although mother had an abundance of milk, baby's weight had fallen to 6 lbs. 14 oz. Following nursing, projectile vomiting had occurred. Stools were normal. Infant was hypertonic and fretted almost continuously. Sudden jarring easily elicited some spasm of the extremities. Chvostek sign was not elicited. Infant had been on atropine sulphate solution, one drop of 1-1000 solution before each nursing, which had been increased to three drops, but apparently without any benefit.

I gave the child calcium gluconate and parathyroid extract-Collip intramuscularly and I stopped the atropine sulphate to make a therapeutic diagnosis. The fretfulness and vomiting decreased considerably, and the condition cleared up entirely with ten days of treatment.

Apparently the tetanic manifestations were a result of the lowered ionic calcium due to vomiting. The cause of the vomiting I do not know, although the evidence seems to indicate it was due to a pylorospasm of tetanic origin and that a vicious circle had set in. Inasmuch as the symptoms cleared up quite rapidly, I am under the impression that the giving of calcium may be an additional and more valuable adjunct in treating pylorospasm than the older method of atropine, thick cereal feeding, etc.

Case 4.—Baby M. was seen by me on September 14, 1935, eight days after the birth of a normal infant with a history of an intermittent crow ever since birth. Family history was unimportant. Labor was normal. Examination revealed a tall, thin, somewhat hypertonic infant, weighing 6 lbs. 15 oz. Examination, except for above revealed nothing pathological. Before advising x-ray of the thymus and before bronchoscopic consultation, I thought it advisable to try calcium gluconate and parathyroid extract-Collip on the supposition that this was a mild case of tetany of the new-born, showing only laryngospasm. One injection was given and crow cleared up immediately and apparently infant is getting along very well.

Bibliography

1. Feer, Emil: *Diagnosis of Children's Diseases*. Translated by C. A. Scherer. Philadelphia: J. B. Lippincott Co., 1928, p. 58.
2. Grulee, C. G.: *Clinical Pediatrics*. New York: D. Appleton and Co., 1926, vol. 3, p. 246.
3. Howland, J., and Marriott, W. McK.: Calcium content of blood in infantile tetany. *Quart. Jour. Med.*, 11:289, (July) 1918.
4. Jones, M. R.: The calcium content of blood plasma and corpuscles in the new-born. *Jour. Biol. Chem.*, 49:187, (November) 1921.
5. Kehrer, E.: Die Geburtshilflich-gynäkologische Bedeutung der Tetanie. *Arch. f. Gynäk.*, 99:372, 1913.
6. Liu, S. H.: Chronic juvenile tetany; comparative study of the effects of various treatments on the calcium and phosphorus metabolism in tetany. *Jour. Clin. Investigation*, 5:259, (February) 1928; Partition of serum calcium into diffusible and non-diffusible portions, *Chinese Jour. Physiol.*, 1:331, (July) 1927.
7. Mitchel, A. G., and Stevenson, F. E.: Chvostek's facialis sign in newborn infants. *Jour. A. M. A.*, 99:1502, (Oct. 29) 1932.
8. Nesbit, H. T.: A syndrome occurring in the neonatal period manifesting tetany-like symptoms. *Am. Jour. Dis. Child.*, 44:287, (August) 1932.
9. Nohlen, A.: Blood calcium in the mother and new-born. *Ztschr. f. Kinderh.*, 42:60, 1926.
10. Shannon, W. R.: Cerebral injury in the newborn: Its relation to constitution and the tetany syndrome. *Am. Jour. Dis. Child.*, 48:517, (September) 1934.
11. von Reuss, A. R.: *Diseases of the Newborn*. New York: Wm. Wood and Co., 1922, p. 343.

THE UNIVERSITY AND THE STATE*

JAMES D. BRUCE, M.D.†
ANN ARBOR, MICHIGAN

Of the many difficult problems incident to the depression, welfare, particularly in relation to the care of the sick, has been one of the most trying. Even after six years much diversity of opinion as to the most feasible plans for its solution still exists. Meanwhile, the medical profession has been carrying a tremendous burden. No group in society has continued to function throughout this period so faithfully to its trust. However, as none but emergency cases of illness are now being cared for in the welfare groups, the early detection and treatment of disease—one of the most important objectives of modern medicine—loses much effectiveness.

The care of the sick is not a humanitarian responsibility alone. Any deviation from the normal, whether it be in acute or chronic illness, physical or mental defects, not only influences the happiness and the success of the individual and of his family, but its ramifications are found throughout all society. Problems relating to health then are very definitely matters of community concern.

We have heard much the past few years of the "more abundant life." As we observe the progress toward this objective, it becomes increasingly clear that we have been indulging in a great deal of wishful and probably unsound thinking. So far as history records, natural laws have not been turned about by a happy phrase, nor even by an alluring political promise. Nature continues to take her toll and give her reward without fear or favor, so that if a life of greater abundance is to come to us and to our children, we, ourselves, are going to be largely responsible for it. The most that any agency, be it government or private

source, may do is to afford opportunity. Humanity's fundamental problems have not changed greatly since man first walked upon the earth, and probably the first effective answer to these problems was formulated when, 2,500 years ago, the Old Greeks set as an objective soundness of mind and of body, thus adding to their ability to adjust themselves more satisfactorily to both the thoughts and actions of others. The capacity to make this adjustment requires knowledge and physical fitness in increasing degree as the problems of national, community and private life increase, as they are increasing, in complexity. A primary objective, then, would seem to be provision for both education and health.

The support of widespread education is fundamental to our democratic form of government. The Founding Fathers recognized in the earliest days of the Republic that if we were to have a government by the people it was necessary that the people be informed. More than this, certain fundamental traits of character were thought to be essential, and these, it was believed, could be nourished and developed by education. On July 13, 1787, Congress passed perhaps the most important piece of fundamental legislation that was ever made for or by the American people. It was an ordinance for

*Presented at the dedication of the Central Michigan Children's Clinic, Traverse City, June 24, 1936.

†Dr. Bruce is vice president of the University of Michigan and director of the department of post-graduate medicine.

the government of the Northwest Territory, a territory which included what is now Ohio, Indiana, Illinois, Wisconsin and Michigan. This has come to be known as the Ordinance of '87. Its provisions were briefly as follows: It prohibited slavery; it provided for religious freedom; it contained a bill for civil rights; and it included above all else "religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." In this early plan to encourage education, the University was visualized as the keystone of the educational arch.

The first constitutions of Pennsylvania, North Carolina and Vermont provided for universities. Any of these beginnings might have developed into a typical state university, but the honor of being the "mother of state universities" was reserved for Michigan. While still a territory the Governor and Judges of the Territory of Michigan, on August 26, 1817, passed an act establishing the University of Michigan. Five years later, on April 30, 1821, this act was repealed, locating the University in Detroit, but on January 26, 1837, after Michigan had been admitted to the Union as a state, one of the first acts of the legislature was to annul the former acts, completely re-organizing the entire school system of the state and establishing the University where it now stands at Ann Arbor.

It is interesting to trace the development of our ideas as to the function of a university. According to Old World ideals, a university is a seat of learning and culture, a place where the frontiers of human knowledge are enlarged and enriched. According to the ideals of our early leaders, such as Washington and Jefferson, a university is primarily for the training of leadership in the arts, sciences and, especially, in government. They realized that government by the people could survive only when there was a high level of intelligence of the people as a whole and a high type of leadership, both being necessary in a government such as ours. Both believed in the university as the keystone of the educational arch. Washington, however, favored a national university while Jefferson, with wider vision of America's future, advocated a university as the crowning achievement of the educational system of each state.

According to our modern democratic

ideals as applying to a state educational system where "schools and the means of education shall forever be encouraged," the function of a university should include not only learning, culture and research, but also the idea of service to the commonwealth as a whole. This concept of university function accounts for the ready acceptance of the request from the Michigan State Medical Society that the University join with it in a plan for the continuing education of physicians.

Eight years ago, the Board of Regents authorized the establishment of a Department of Postgraduate Education in the Medical School of the University of Michigan. Under the direction of this Department and in collaboration with the State Medical Society, a teaching program designed to meet the needs of the practising profession was begun in Ann Arbor and Detroit. Two years ago this program was extended into other centers of the State—in Battle Creek and Kalamazoo, jointly, Grand Rapids and Flint. Last year centers were established in Bay City and in Traverse City-Cadillac-Manistee, jointly, to serve more conveniently the profession of the northern portion of the lower peninsula of the State. A similar program will be instituted in October of this year in a central part of the upper peninsula, probably Marquette, Houghton, or Escanaba, or all three.

This statewide program should, if the profession avails itself of it, make possible an acceptable quality of medical service in every town and village of the State. It is true that all medical treatment may not be carried out to best advantage in distinct areas of the State. Many disorders must still be dealt with by doctors who have had special training and in surroundings with unusual equipment. While this continuous program of postgraduate training permits a larger number of doctors to care for a wider variety of disorders, the diagnosis of more obscure manifestations of disease and the direction of their treatment must be in specialized hands which have access to more complete equipment.

There was a time when medical knowledge was relatively static, when scientific progress was so slow that the well-trained graduate could practice effectively with but an infrequent visit to a teaching center. Those days have long since passed and

scarcely a year goes by without some advancement in medical science.

It was to help in the continuing education of doctors and for the purpose of raising the quality of medical care, as well as to be of direct service to underprivileged children that the University entered into a partnership with the Children's Fund of Michigan in a clinical teaching center for the diseases of children at Marquette five years ago. The high regard in which the services at the clinic are held by both the medical profession and the public has influenced the University administration and the medical profession in the establishment of a similar service at Traverse City. As in the case of the Marquette clinic, this service is not designed to replace the services of the doctors in this area. It proposes to supplement the activities already existing by making available a practitioner trained in the diseases of children and all the modern equipment necessary for a complete medical service in this field.

Twenty years ago, a spokesman of the medical profession of America stated in substance that it was the duty of the medical profession to strive for an adequate service to all of our people, both rich and poor, at a price within their means to pay. The medical profession of this state has dedicated itself to this principle.

Besides providing for better medical service, the medical profession and the University are sponsoring another program under the designation of the Joint Committee on Health Education, whose purpose it is to make available information on health and to foster and promote wholesome health habits among our citizens.

"The function of the Joint Committee is to present to the public the fundamental facts of modern scientific medicine for the purpose of building up sound public opinion relative to questions of public and private health. It is concerned in bringing the truth to the people, not in supporting or attacking any school, sect, or theory of medical practice. It will send out teachers, not advocates."

It was apparent from the beginning that there were many agencies other than the medical profession necessary in a complete program of health teaching, and the professions of dentistry, nursing, public health, and all of the various health agencies of the

State, both professional and lay, have joined in the program. High school and public lectures on health have been given throughout the State in recent years through the Joint Committee on Health Education under the direction of the Extension Division of the University. With the generous financial support of the W. K. Kellogg Foundation, the Children's Fund of Michigan—responsible for the Children's Clinic which we are dedicating today—and contributions from the various agencies which constitute the Committee, there is now nearing completion, with the approval and assistance of the State Department of Public Instruction, a program of health education which will very shortly be incorporated as an integral part of the curriculum of the school system of the State. This matter is mentioned at this time as an indication of the importance in which the health of the child is held by those interested in his education as well as those concerned with his medical care.

There are, then, two interlocking programs in the health interests of the State: the first providing for an adequate, up-to-date medical service; the second providing for the dissemination of useful knowledge directed toward the formation of sound health habits, this program to begin in childhood, both in the home and in the school, and to continue throughout the life of the individual.

A university may be said to have three definite functions: to meet on its campus the educational needs of its students; to enlarge the boundaries of knowledge, and to further by advice, direction and influence the interests of its citizens. The university's immediate function, of course, is education. However, our own studies and innumerable others show a definite relationship between physical fitness and scholarship; that on the average the boy and girl with good physiques and free from illness make the better scholars and, everything else being equal, the better citizens. What worthier obligation may a state-supported university assume than to qualify for useful, independent citizenship through the promotion of health, scholarship and the advancement of knowledge?

UNUSUAL OVARIAN TUMOR

L. E. HAMLIN, M.D., F.A.C.S.†
Surgeon-in-charge, Penn Hospital

NORWAY, MICHIGAN

Huge ovarian tumors are by no means uncommon in medical history but owing to modern surgery they are becoming increasingly rare. The case here recorded presents some unusual aspects and these, I believe, will be of sufficient interest to warrant its publication.

Motley⁷ reports a review of the literature by J. G. Ward in 1922 showing five cases of ovarian cyst weighing more than 225 pounds viz; Brinkley 225 pounds, Tuffier 235 pounds, Bartlett 245 pounds, Barlower 298 pounds and Spohn 328 pounds (estimated weight). There were four cases of more than 200 pounds, twenty-nine weighing more than 150 pounds and seventy-eight, more than 100 pounds. Ward¹¹ reported a case himself at this time of an ovarian cyst weighing 221 pounds in which the patient died one hour after the removal of the tumor. In Motley's case the tumor weighed 107.5 pounds. His patient, a woman of fifty-one years, made a good recovery. Lloyd, Showalter and Davis⁶ successfully drained and removed a cyst weighing 175 pounds from a woman forty-seven years old. Gibson³ reported removal of a pseudomucinous cystadenoma containing 18 gallons of fluid, the patient making a good recovery. Robinson and Grove-White⁸ removed a dermoid ovarian tumor weighing 25 pounds.

A considerable number of cases of large ovarian cysts in juveniles has been recorded. According to Secor⁹ up to 1905, sixty-one ovarian cysts in children had been noted. Since that time thirty-eight more have been added. In 1893 Keen⁵ removed an ovarian tumor weighing 111 pounds from a fifteen year old girl. The child recovered. Findley,¹ in 1921, reported a case of ovarian cyst weighing 32 pounds in a girl of thirteen years. In 1895, Walter¹⁰ described a case of multilocular cyst weighing 13 pounds 10 ounces in a thirteen year old girl. Furber² removed a pseudomucinous cyst weighing 21.2 pounds from a fifteen year old girl with a good recovery. Greenhill⁴ reported a cystic fibroid weighing 47 pounds in a colored woman of forty-eight years who died before operation. The tumor simulated an ovarian cyst and there were many points of similarity between his case and the one reported here.

†Dr. L. E. Hamlin is a graduate of University of Toronto, 1922. He was assistant in Surgery, Henry Ford Hospital, Detroit, Michigan, 1923-1925; Surgeon, Ford Motor Company, Iron Mountain, Michigan, 1925-1929; Surgeon, Penn Iron Mining Company, Norway, Michigan, 1929-1934. He is a fellow of the American College of Surgeons (1931) and Medical Director Penn Iron Mining Company Hospital, Norway, Michigan.

Report of Case

Mrs. E. M., aged thirty-five, was first seen five years ago complaining of a sore throat. A very noticeable swelling in the abdomen, about the size of a full term pregnancy, was noted at this examination. On further interrogation she emphatically stated that she was not pregnant and had just finished her regular menstrual period. Examination revealed a tumor of considerable size which appeared to be confined to the left side. An ovarian cyst was suspected and the patient was advised to have it operated upon. This she refused to do, stating that she was afraid of an operation. In April, 1935, she again reported for examination and wished to have the tumor removed. She now recalled that she had first noticed the swelling in her abdomen seven years ago and had consulted a physician at that time, but conceiving the idea that nothing could be done for her, had allowed the condition to progress. The family history was negative. Her parents were dead and she had four sisters alive and well. She had one child, now a boy of sixteen, but no other pregnancies. The only previous illness she could remember was scarlet fever during childhood.

Aside from the enormous enlargement of the abdomen she complained of spells of gastric distress particularly after a big meal, constipation and inability to move about. She suffered no abdominal pain, there were no urinary symptoms and she menstruated regularly, the flow lasting eight to ten days. She had considerable backache at her periods. The swelling in the abdomen had been increasing more rapidly of late, she was becoming short of breath and found it next to impossible to do her housework. She had finally realized that something must be done and determined to have it taken care of.

Examination revealed a well developed, well nourished white woman of thirty-five years. Her weight was 198 pounds, temperature 98.4, pulse 102 per minute and respirations 20. The eyes reacted to light and accommodation. Teeth were in bad condition. There was a slight fullness of the thyroid gland. Systolic blood pressure was 110 and diastolic 80. The chest showed no pathologic change. The abdomen was enormously distended, the skin tense and showed many striae. The contour was quite smooth. The lower portion was becoming definitely pendulous. The ribs were flared outwards owing to upward pressure from the tumor, and there was a tortuous varicosity along the anterior aspect of the left thigh. On percussion there was definite evidence of fluid though a wave was difficult to elicit. In the lower left quadrant the tumor was very firm and was definitely solid rather than cystic. There was no tenderness anywhere in the abdomen. Pelvic examination was unsatisfactory as nothing could be felt except the huge mass.

UNUSUAL OVARIAN TUMOR—HAMLIN

Laboratory findings were as follows: Kahn precipitation test negative; urine, specific gravity 1023, color amber, slight turbidity, acid reaction, slight trace of albumin, sugar negative. Microscopically there was an occasional hyaline cast and 18 to 20 pus cells per low power field.

the fluid gradually. Following this procedure she experienced considerable relief and the abdomen decreased in size so that a solid mass could be definitely palpated in the lower left quadrant. After several days in bed only two quarts of fluid were obtained, so the catheter was removed. The wound

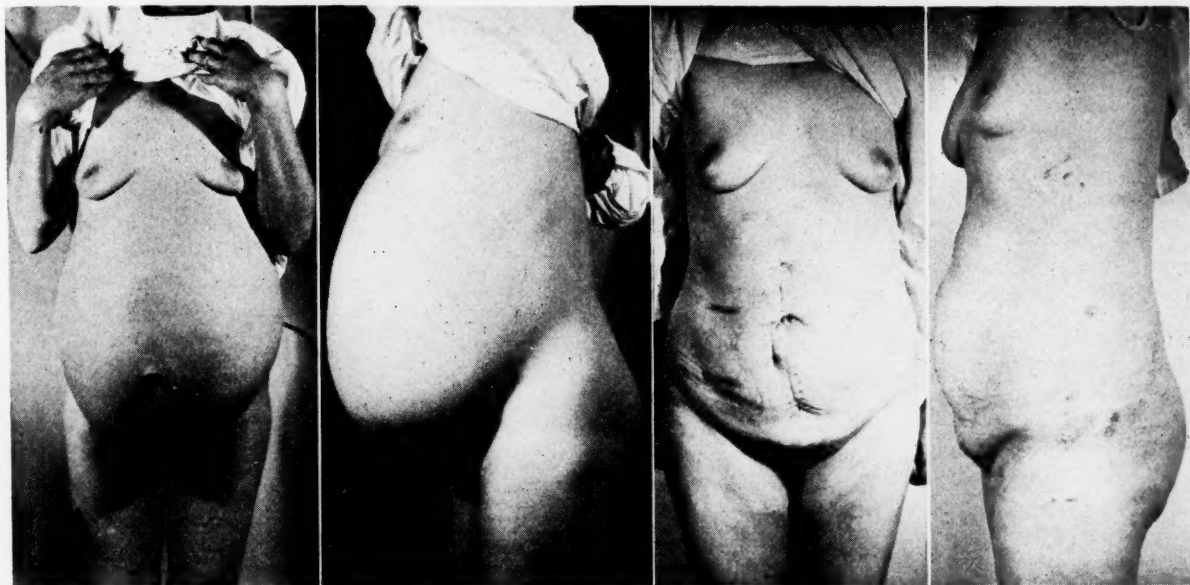


Fig. 1. Patient before operation.

Fig. 2. Patient after operation.

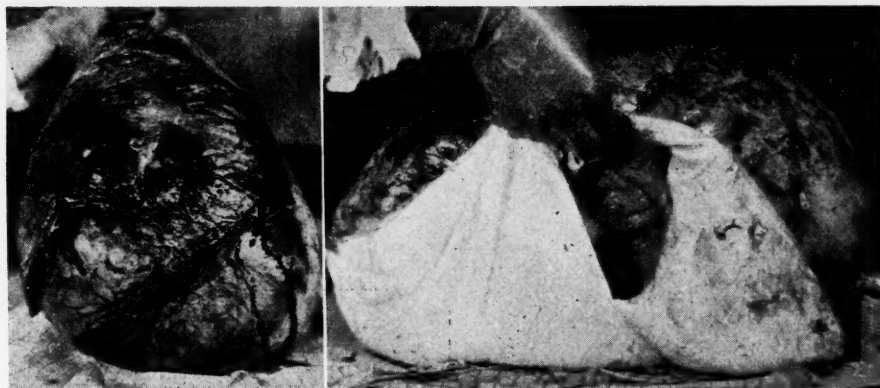


Fig. 3 (left). Anterior view of tumor.

Fig. 4 (right). Solid portion of tumor showing cyst wall attached.

White cell count 9,000; red cells 3,900,000; hemoglobin 75 per cent; differential count, polymorphonuclears 67, large lymphocytes 9, small lymphocytes 16, monocytes 4, transitional cells 4.

A radiograph of the abdomen showed only a general haziness.

On April 10, 1935, under local infiltration with novocain 1 per cent, an incision was made to the right of the umbilicus and a small area of the wall of the tumor exposed. The mass was quite adherent to the parietal peritoneum. Ten cubic centimeters of straw colored fluid was aspirated, following which a Kelly clamp was pushed through the cyst wall and about four quarts drained off. Pressure on the abdomen was necessary to force out any considerable quantity of fluid. A number sixteen French catheter was introduced through the wall of the tumor and fastened in place by means of a purse string suture. The patient was returned to bed as it was planned to remove the remainder of

closed quickly and the patient was allowed to return home.

On May 17, 1935, she was again admitted to hospital. The tumor was now its original size. Under ether anesthesia a midline incision approximately fourteen inches long was carried down to the peritoneum and the abdominal cavity opened. The abdominal wall was very thin and the tumor immediately presented itself. It was quite adherent to the peritoneum but stripped readily from it. During this process the cystic portion ruptured allowing a large amount of fluid to gush out, approximately four gallons being caught. The mass was then delivered through the incision, the pedicle clamped and incised and the tumor removed. It had originated from the left ovary. The uterus was quite flattened out, and the intestines appeared flat and ribbon-like. The whole abdominal cavity was widely exposed by the removal of the mass and all the organs could be very distinctly observed. No other pathology was

found and the right ovary was normal. The incision was closed in the routine way after inserting one cigarette drain. The contour of the abdomen was now markedly scaphoid and the flaring of the lower ribs accentuated. Large dressing pads were used and adhesive strapping applied. The patient stood the operation very well and left the operating room in good condition.

The tumor was found to consist of two portions, a large greyish white, solid mass and a much thickened cyst wall. There were many tortuous vessels over its surface and the cystic portion contained large clumps of greyish fibrinous-looking material and coagulum. Microscopic examination of the fluid showed considerable mucoid debris with an occasional pus cell. No bacteria were found. The tumor, minus the fluid, weighed 28 pounds. The fluid collected weighed 36 pounds, making a total of 64 pounds. Taking into consideration the amount of fluid lost at operation the combined weight must have been in the neighborhood of 70 pounds. The patient showed no signs of shock at any time and made an uneventful recovery. On June 22, 1935, her weight was 130.2 pounds.

Bibliography

1. Findley: Partial rupture of an ovarian cyst weighing thirty-two pounds with great loss of blood in a girl fifteen years of age. *Jour. Obstet. and Gynec. British Empire*, 28:151, 1921.
2. Furber, R. I.: Ovarian cyst in a girl aged fifteen years. *Med. Jour. of Australia*, p. 683, (Nov. 12) 1927.
3. Gibson, Gordon: Large ovarian cyst. *Amer. Jour. Obstet. and Gynec.*, 26:264-267, (August) 1933.
4. Greenhill, J. P.: Cystic fibroid weighing forty-seven pounds and simulating an ovarian cyst. *Amer. Jour. Obstet. and Gynec.*, 25:440, (March) 1933.
5. Keen, W. W.: An ovarian tumor weighing one hundred and eleven pounds removed from a child of fifteen whose weight was sixty-eight pounds. *Coll. and Clin. Record*, 14:142, 1893; *Medical Review*, 28:3, 1893.
6. Lloyd, Showalter and Davis: Ovarian cyst. Report of an unusual case with recovery following operation. *Jour. Amer. Med. Assn.*, 103:559, 560, (Aug. 25) 1934.
7. Motley, J. C.: Ovarian cyst with report of an unusual case. *Virginia Med. Month.*, pp. 767-768, (February) 1924.
8. Robinson, J. B., and Grove-White, J. H.: Torsion of a Large Dermoid Ovarian Tumor, 1925.
9. Secor, W. L.: Multilocular tubo-ovarian cysts in juveniles. *Jour. Amer. Med. Assn.*, 87:940, (Sept. 18) 1926.
10. Walter, W.: A case of leakage of multilocular cyst in a girl thirteen years of age. *Brit. Gyn. Jour.*, 11:51, 1895-1896.
11. Ward: *Surg., Gynec. and Obstet.*, (January) 1922.

THE RELATIVE VALUES OF THE SYMPTOMS OF APPENDICITIS

C. R. DAVIS, A.B., M.D., F.A.C.S.†
DETROIT, MICHIGAN

As simple and well known as the symptoms and signs of appendicitis are, their relative values are not so well known, for which reason I shall discuss these values as shown in an analysis of a series of 951 cases.

The typical symptoms and signs of appendicitis are epigastric pain, nausea, vomiting; pain, tenderness, and rigidity in the right lower quadrant; fever, and leukocytosis. When all of these symptoms and signs are present, the diagnosis of appendicitis is agreeably easy, but frequently some of them are absent, and at times it is so difficult to obtain a clear cut history that the best of diagnosticians are doubtful about the diagnosis.

The least dependable symptoms and signs might be called accessory and are fever, leukocytosis, and rigidity, dependence upon any or all of which may cause errors in diagnosis. Although they are very helpful when present, their absence should not delay operation if the more dependable symptoms and signs are present. Other accessory symptoms such as chills and diarrhea occur, and then there is the history of repeated attacks which is very important even though not a symptom. Although nausea and vomiting are accessory symptoms, they assume great importance when classified with the mid-abdominal group of symptoms which I shall discuss later.

Fever accompanies so many disease conditions that it alone is of little help. It is so often absent in appendicitis, even in patients with advanced appendicitis, that I never permit its absence to influence me to postpone operation. It may rise in all cases at some time and then drop, but if we do not see the patient during the time the fever is present, we frequently have no way of knowing that fever has existed. I have often said and still say that we should never wait for a rise in temperature when the temperature is normal because by the time a rise in temperature occurs we frequently are too late, not to save a life, but to have a clean case.

In 144 of the acute cases of the series of 951 cases the following temperatures impressed me sufficiently to mention them in my notes:

†Dr. C. R. Davis graduated from Cornell University Medical College, New York City, in 1908 with an M.D. degree. He served as Interne and House Surgeon at the Presbyterian Hospital in New York City in 1909 and 1910. He is Attending Surgeon and Advisory Consultant of the Out-Patient Department, The Grace Hospital.

SYMPTOMS OF APPENDICITIS—DAVIS

Temperature	No. Cases
98.6	25
99	25
100	24
101	22
102	27
103	9
104	8
105	3
107	1

Thirty-four and seventy-two hundredths per cent of the temperatures were almost normal and 17.36 per cent were normal.

Similarly, leukocytoses, although a well-known sign in appendicitis, should be disregarded when not consistent with the more reliable symptoms. In 440 cases in which I recorded leukocyte counts, the figures were:

Normal	21
Below 10,000	111
10,000 to 15,000	154
15,000 to 20,000	102
20,000 to 25,000	45
25,000 to 30,000	7

Thirty per cent of the leukocyte counts were below 10,000.

Chills occurred seven times in 951 cases, diarrhea twenty-one times and may have been an etiological factor, and repeated attacks, 296 times, a rather helpful history.

Rigidity is considered by many as very important. In the 951 cases rigidity could be recognized as follows:

234 times in the right lower quadrant
72 times general
24 times elsewhere
20 times absent (at least I could not recognize rigidity)
601 times too uncertain for comment

Thirty-four and seventy hundredths per cent showed rigidity which could be recognized easily with certainty.

When we consider how much practice is required to obtain the touch necessary to recognize slight degrees of rigidity and that the average physician will see only ten or twelve cases of appendicitis a year, and when it can be recognized easily in a third of the cases only, it cannot be considered reliable, even though we must admit that it is important. The symptoms which I have discussed so far I consider undependable symptoms, because they occurred in about one-third of the cases only.

The first reliable or dependable symptom is the mid-abdominal symptom without which I seldom recommend operation. If we look only for severe mid-abdominal or

epigastric pain, we shall frequently fail to suspect appendicitis, but if we consider all mid-abdominal symptoms, we shall seldom fail to suspect appendicitis. The mid-abdominal symptom in the 951 cases appeared as follows:

Epigastric pain	401
Mid-abdominal pain	308
Indigestion	152
Nausea	239
Vomiting	462
General pain	47
Lower mid-abdominal pain	31
Bladder symptoms	10
No record of symptoms	32

The most common symptom of the mid-abdominal group was vomiting.

Some patients, of course, presented more than one of the symptoms in this group.

The symptoms and signs which all physicians know are pain and tenderness in the right lower quadrant. These are second in importance only in time of appearance. Because they are so reliable, the family physician seldom overlooks a case of appendicitis. I found that 850 cases of the 951 had pain in the right lower quadrant and 839 had tenderness. Only nine cases did not have any right lower quadrant symptoms and four of these had pain on the left side. As important as right lower quadrant symptoms are, when taken alone, mistakes will be made; but when considered with the mid-abdominal symptoms, mistakes need occur infrequently.

I have thus divided the signs and symptoms of appendicitis into two groups, the unreliable and the reliable, the latter of which are the mid-abdominal symptoms and right lower quadrant pain and tenderness. As the pain generally appears first mid-abdominally, the shift of the pain is down and out. Keeping in mind this arrangement of the two groups of symptoms and signs with the shift, the following findings are of interest:

Mid-abdominal symptoms absent	34 cases
Right lower quadrant symptoms and signs absent	9 cases
Doubtful diagnosis indicated by the right rectus or midline incision used	91 cases
Errors in diagnosis	19 cases

The errors in diagnosis were as follows:

1. B. B., age eleven, organized hematoma in the omentum, perhaps the result of injury. No right lower quadrant symptoms.
2. H. C., age twenty-five, tuberculosis of the peritoneum. No right lower quadrant symptoms.
3. E. C., age thirty-four, Henochs purpura. Usual symptoms for appendicitis.

4. S. D., aged seventeen, acute salpingitis. Usual symptoms for appendicitis.
5. E. M., age eight, gonococcus peritonitis. Usual symptoms for appendicitis.
6. V. M., age fifty-five, retrocolic abscess. Typical symptoms, appendix normal.
7. J. M., age sixty-two, diverticulitis of the small bowel with abscess. Usual symptoms.
8. A. O., age twenty-five, gonorrheal peritonitis. Typical symptoms.
9. H. R., age four, peritonitis from perforation of an ulcer in the ileum next to the cecum. Typical symptoms.
10. R. F., age twenty-six, carcinoma of the stomach, chronic appendicitis. Typical symptoms from the chronic appendicitis, and obscure symptoms of the major lesion of carcinoma of the stomach.
11. A. B., age twenty-two, twisted omentum. Typical symptoms.
12. T. W., age ten, acute salpingitis. No mid-abdominal symptoms.
13. R. R., tuberculous peritonitis. No mid-abdominal symptoms.
14. C. M., age eighteen, acute salpingitis. No mid-abdominal symptoms.
15. I. B., twisted right tube. No mid-abdominal symptoms.
16. W. B., age twenty-one, general peritonitis from intestinal obstruction. He was too sick to answer questions intelligently.
17. Mrs. P. B., age thirty-eight, peritonitis. Unsatisfactory history.
18. Mrs. R. M., age twenty-six, history of appendix having been removed fifteen years before. History indicated appendicitis. Operation for intestinal obstruction and peritonitis. Conditions found at operation, general peritonitis from ruptured appendix.
19. A. R., age twenty-two, symptoms indicated an ectopic pregnancy. Pain in the lower abdomen and dribbling menstruation.

Two cases had no right lower quadrant symptoms; four had no midabdominal symptoms; nine had the usual symptoms, which is explained by the inflammatory extension of the exciting cause to the appendix or an involvement of the appendix additionally to the chief cause of illness. These fifteen patients recovered satisfactorily for the time being. The patient who had carcinoma of the stomach ultimately succumbed to the carcinoma. Four cases were diagnosed as some other condition for the reasons which I have stated. These four patients died.

Conclusions

The symptoms and signs of appendicitis may be divided into two groups:

Accessory (helpful but undependable because they were present in a diagnostic degree in a minimum of one-third to a maximum of two-thirds of the cases): Fever, leukocytosis, rigidity.

Dependable and important because they occurred in nearly 100 per cent of the cases: Mid-abdominal symptoms; pain and tenderness in the right lower quadrant.

My analysis convinced me that when the dependable symptoms are present, the percentage of errors in diagnosis will be small.

THE GASTRO-INTESTINAL SYNDROME IN CORONARY DISEASE

JOSEPH P. BERTUCCI, M.D.†
ISHPEMING, MICHIGAN

The question of coronary artery disease is of vast importance in the practice of medicine. Any physician of average knowledge is able to diagnose this correctly when the symptoms are referable to the chest but the question of coronary artery disease with symptoms simulating an acute abdominal condition is of greater importance and much more difficult to diagnose. This refers not only to the internist but more so to the surgeon who is called upon in consultation and who must make a differential diagnosis between coronary disease and acute operable conditions. The last question is of far greater importance when it is brought to mind that this disease is usually seen in males past forty, and especially in those individuals who occupy the upper economic strata of life, such as, lawyers, doctors, clergymen, etc. These men are striving for

success, be it economical, professional or political. This success is paid for by an early arterial degeneration. Osler¹⁶ stated:

"I believe that the high pressure at which men live, and the habit of working the machine to its maximum capacity, are responsible for arterial degeneration at an early age. Angina sclerosis, creeping on slowly but surely with no pace perceived, is the Nemesis through which nature exacts retributive justice for the transgression of her laws, slitting

†Dr. Bertucci was graduated from the Marquette College of Medicine and Surgery in the class of 1932. He served his internship in the Milwaukee County General Hospital. He is a member of the Michigan State Tuberculosis Sanatorium Commission.

the span of life in the fifth decade at a time when success seems assured."

This early degeneration is manifested by all the organs of the body, but especially the heart, which, after all, is the dynamic power or force which regulates our activities by furnishing the proper amount of fuel at the right time to the organism. As this organism goes on at its maximum speed, a time finally comes when signs and symptoms of beginning destruction become evident. The blood pressure goes up, leading to sclerotic processes in the arterial system, which, in turn, leads to narrowing of the lumen of these vessels, and to their inelasticity. As this process is going on, the heart must work harder in order to get enough nutritive material to the tissues. The heart, therefore, hypertrophies, but a time finally comes when the coronaries are so narrowed that the heart muscle cannot get enough oxygen and nutritive material when the individual is put to some added exertion, which demands that the heart increase its output. This condition is manifested by pain, which is suffered by the individual.

The pain may be of the classical anginal type, that is, substernal or precordial in character radiating to neck, down the left arm, or down both arms, but it also may be referred to the epigastrium. Rigidity and tenderness of the abdomen may be also present. This, coupled with nausea and vomiting several hours after a meal which relieves the pain, may be mistaken for some acute surgical condition of the abdomen by the attending physician. Unless the surgeon who is called into consultation is versed in the differential diagnosis of coronary disease, a grave error may be made which may end fatally for the patient. This fact was also pointed out by Osler¹⁸ in his lectures on angina pectoris, in 1896.

Angina pectoris, which is an early manifestation of coronary disease and final occlusion, was first described in the middle of the eighteenth century by Heberden, Jenner, and Hunter. John Hunter was a victim of this dreaded disease. He suffered his first attack in 1773, which was described in detail by his nephew, Everard Home. Following several attacks he finally succumbed to the disease. The last attack was precipitated by a fit of anger during a meeting of governors of St. George's Hospital in England, October 16, 1793. Home

performed the autopsy and found that the coronary arteries were sclerosed.

As was stated above, coronary artery disease is an end stage of the so-called syndrome of angina pectoris. The first to give an accurate account of this, in America, was Herrick in 1912. It is now generally believed that angina pectoris means sclerosis of the coronary arteries, and that mild attacks, such as attacks that last for a short period of time, mean beginning sclerosis of these vessels, while sudden attacks, lasting for a longer period of time, are due to a thrombosis.

As a direct result of obstruction of the coronary arteries the necrotic process in the heart muscle may extend outward and involve the pericardium, resulting in a pericarditis. This gives rise to pericardial friction rubs. Or it may extend into the endocardium, producing a mural thrombus. Pieces of this thrombus may break off and be carried through the blood stream, resulting in a hemiplegia, infarcts of the spleen, or pulmonary embolism, depending on whether the thrombus is in the left or the right ventricle. Also, the necrotic process may involve the interventricular septum, manifesting its presence by various types of blocks. And, too, the necrotic process may be so extensive as to result in an aneurysm which may later rupture, bringing about sudden death of the patient.

It was thought, at one time, that the coronary arteries were "end arteries" but it has been demonstrated that anastomoses were present, however small and insufficient they happened to be.¹³ If a coronary artery is occluded gradually, these anastomoses may develop to such an extent as to take care of the nutritive wants of the heart muscle, which may allow the patient to lead a fairly comfortable life, but if the coronary arteries are occluded suddenly, the collateral circulation is insufficient to carry the load. This leads to collapse, manifesting any one of the syndromes of coronary disease.

The intensity of the pain varies only with the degree of obstruction and also with the size of the vessel that is involved. The larger the vessel obstructed, the more severe will be the pain. As a direct result of a series of experiments with dogs, it was found that temporary or complete occlusion of a coronary artery produces pain. They also demonstrated that the course of the pain to the brain was through the sympa-

thetic system, as there was no evidence of pain when the stellate ganglion was severed, and presence of pain when the vagi only were cut. Nausea and vomiting also occurred during partial occlusion of the coronaries, even after the sympathetic route was severed. This gave conclusive evidence that vomiting was due to a reflex action.²⁵ Therefore, pain is due to interference of blood supply to the heart muscle, as pointed out by these workers, the intensity of which varies with the size of the vessel obstructed and the degree of obstruction.

The findings at autopsy depend on the length of time that has elapsed between the occlusion, subsequent obstruction, and death. If death occurs suddenly, the heart muscle appears normal, but if there is quite an interval between the attack and death, the heart muscle is paler, grayer, and softer than seen in the normal. If a longer time elapses between the attack and death, an infiltration of leukocytes, proliferative changes with lymphocytes and fibroblasts, young connective tissue, and newly formed blood vessels will be found. If the patient survives the attack, scar tissue is formed in the heart muscle as pointed out. As the patient goes on an aneurysm may be formed by the giving way of this fibrosed portion of the muscle. This may rupture, leading to instant death.

Either coronary artery may be involved—right or left. The artery that is usually involved is the anterior descending branch of the left coronary, which was called by Osler, "the artery of sudden death." This artery supplies the lower part of the left ventricle and the interventricular septum, but Whitten²⁷ has demonstrated that the terminal descending branch of the right and the circumflex branch of the left coronary arteries became involved just as frequently, but were overlooked. He also pointed out a peculiar anatomical condition of these arteries which may contribute to their sclerosis. He states that these arteries enter the heart muscle at almost right angles, and points out that this immobilization enhances their tortuosity, which leads to kinking and subsequent constriction of the lumen.

The sudden death of a person who has always been well, or who has a previous history of anginal attacks, nearly always means acute occlusion of a coronary artery, even though all the classical symptoms of coronary disease are not evident. This is

one of the most serious accidents in cardiology.

The onset of coronary artery disease is usually sudden, precipitated by a heavy meal or some other form of exertion, be it mental or physical. In those atypical cases, with the gastro-intestinal syndrome, the individual will be suddenly seized with an agonizing pain in the epigastrium, which may radiate to either upper quadrant. The pain is of a persisting character and is so severe that the patient has a fear of impending death. There is severe tenderness and rigidity, simulating a gall bladder attack, ruptured peptic ulcer, or acute pancreatitis. A gaseous distention, which, when expelled, affords some relief, is also present. Nausea and vomiting often accompany this condition. A history of previous attacks of "indigestion" is important in obtaining because, if properly evaluated, usually points to atypical anginal attacks. The rigidity and tenderness may simulate some intra-abdominal accident which may lead to an exploratory laparotomy and subsequent death. Shock is always present. Features are pinched; forehead is covered with perspiration; color is ashen-gray; pulse is weak and thready. Dyspnea may or may not be present, but if the history is gone into carefully the physician will elicit symptoms of some dyspnea which the patient states is of no significance. The heart is nearly always enlarged but, except for weak and distant heart tones, no abnormality is found. Pericardial friction rub is a diagnostic point but one must be on the lookout for it as it may be present only once or twice during the course of the illness. It appears about one to eight days following the attack. It is well worth one's while to make frequent examinations of the heart as it clinches the diagnosis. Fever is present about twenty-four hours after the onset of the attack. It usually ranges from 100 to 102 degrees Fahrenheit. A leukocytosis of from 10,000 to 25,000 may be found. The findings of a leukocytosis, coupled with other findings of an acute abdominal disease, will usually make the surgeon be in favor of an acute surgical condition, unless he is familiar with the fact that it is present in coronary infarction.

Occlusion of a coronary artery affects the function of the heart. The left ventricle is most commonly involved. This becomes damaged and is unable to carry the load.

The blood pressure falls and blood is dammed back upon the lesser circulation, resulting in edema of the lungs. This condition makes itself evident by the presence of râles at the bases of both lungs, which is nearly always present. Jaundice may be also present in some of these cases which, when associated with pain in the epigastrium radiating to the gall bladder region, may be mistaken for cholelithiasis with obstruction of the common bile duct. The following case demonstrates this clearly:

Case 1.—J. F., male, aged fifty-five, steelworker, underwent an appendectomy six years ago. Five years ago the patient suffered what was supposed to have been a gall-bladder attack. A laparotomy was performed but the gall bladder was found to be normal. Convalescence was long drawn out. Except for some epigastric distress the patient says that he was apparently well until August 11 of last year, when he was suddenly seized with what appeared to be a typical attack of coronary disease. His blood pressure at this time was 130 systolic and 80 diastolic. The patient gives a history of having had a hypertension of 188 systolic and 130 diastolic for many years. He was put under a strict cardiac regime but in spite of this suffered an attack approximately every four to six weeks. He was apparently holding his own when, in January of this year, he was suddenly seized with epigastric pains, radiating to the gall bladder area and to the back. He said that he felt a gaseous distention, which was relieved by the ingestion of bicarbonate of soda. A large quantity of bile was vomited on several occasions. A few days later he developed icterus which was quite intense. The next day his temperature was 100 degrees Fahrenheit. A leukocytosis was also present. The pulse was somewhat weak but regular. Beads of perspiration stood out on his forehead. The patient was in definite shock. The pain was of an excruciating type. He always feared impending death, as mentioned, after each attack. There was marked rigidity over the epigastrium and gall-bladder area. Dyspnea was present although not very marked. All opiates available were tried without any desirable results. The electrocardiographic tracing demonstrated an inversion of the "T" wave in leads I and II.

Under vigorous cardiac treatment the patient responded very well, when, on January 23, 1932, he suffered another attack of a similar nature. Vigorous treatment was again instituted. Jaundice disappeared in a few days and the patient felt well again. He was discharged a few days later when he insisted on leaving the hospital contrary to advice.

There was no question in our minds that this patient had coronary disease, but why might he not have had gall-bladder disease in conjunction with coronary disease? In view of the fact that he had undergone a laparotomy several years past, and a normal gall bladder found, would indicate that the icterus, plus the other gastric symptoms, would be another manifestation of coronary disease.

A case similar to this was reported from

the Massachusetts General Hospital.⁴ In the discussion, Dr. Mallory gives a logical reason for the jaundice in these cases of coronary disease with the gastro-intestinal syndrome. At autopsy the liver findings were "thrombophlebitis of the portal vein, which caused a partial obstruction of the extra-hepatic portion, multiple intrahepatic thrombi, and extensive necrosis of the liver." He states that such lesions may produce jaundice in these patients.

Case 1 was not difficult to diagnose because of the previous typical coronary attacks.

The following cases are more typical of those cases of coronary disease who present themselves with the gastro-intestinal syndrome only.

Case 2.—H. N., male, aged fifty years, entered Milwaukee County Hospital May 30, 1931, because of attacks of "stomach trouble." The present attack came on suddenly several hours after the evening meal. It was precipitated, so he thought, by the ingestion of eggs. His complaint was epigastric pain of a boring persistent type; also, gaseous distention. He also gave a history of weakness and dyspnea, which he has had for a long time, and which he placed no significance. This dyspnea was of several months duration. The balance of the history was negative, except for "rheumatism" twenty years ago.

On physical examination it was found that the peripheral arteries were sclerosed. Heart was enlarged. An auricular fibrillation was present. No murmurs or friction rubs were made out at this time. Temperature remained normal. On June 4 his white count was 13,000. The blood pressure was 120 systolic and 70 diastolic. Electrocardiograph tracing demonstrated an inversion of the "T" wave in all leads. A diagnosis of coronary occlusion was made by our clinical director, Dr. F. D. Murphy.

Under treatment the patient remained so well and free from symptoms that he insisted on leaving the hospital. He was subsequently discharged.

Case 3.—L. B., aged fifty-two, entered Milwaukee County Hospital on January 1, 1932, with the following complaints: Sudden attack of agonizing, persisting epigastric pain five hours after the evening meal, gaseous distention, and vomiting. The vomiting afforded some relief. There was no dyspnea. The patient stated that he had a similar attack last summer, following a heavy meal.

Examination revealed an obese, middle-aged man who seemed to be in great distress. The thorax was of the emphysematous type. Râles were heard in both bases. Apex of the heart could not be palpated. Tones were distant and hardly perceptible. There was extreme tenderness in the epigastric area, but no rigidity. Liver was enlarged and somewhat tender. Blood pressure was 115 systolic and 75 diastolic. Temperature slightly elevated. Leukocytosis of 10,950. The electrocardiographic tracing was very suggestive of coronary disease. A diagnosis of coronary disease was made by our clinical director, Dr. Murphy.

The patient was very uncoöperative and was discharged on January 15, 1932.

Case 4.—A. D., aged forty-eight, entered Milwaukee County Hospital on December 4, 1931, with the following complaint: Four days previously he was

suddenly seized with epigastric pain of a severe agonizing, and persistent character. The patient stated that the pain was different from any other pain that he had ever experienced in all his life. He feared that death was upon him. He was taken to emergency hospital where opiates were given after a diagnosis was made. Two days later patient insisted he be discharged.

The night before entering the hospital he suffered a similar attack, this time associated with dyspnea and vomiting, which afforded him some relief. There was some cough also.

Examination revealed a well-nourished man, past forty, who seemed to be in great distress. Color was ashen-gray. The thorax was of the emphysematous type. Many râles were heard at the bases of both lungs. Many sonorous râles were heard throughout. The peripheral arteries were markedly sclerosed. The heart was slightly enlarged. The tones were weak and distant. The abdomen was not tender or rigid. The liver was not palpable or tender. In this case the electrocardiographic tracing was normal. The temperature on entrance was 99.6 while on the next day it rose to 100.6 degrees Fahrenheit. No leukocytosis. Blood pressure was 115 systolic and 75 diastolic. A diagnosis of coronary disease was made by Dr. Murphy.

On December 6 the patient suffered another attack of a similar nature. Following this the patient felt so well that he insisted on going home, in spite of advice to the contrary. He was discharged on December 10, 1931.

Case 5.—A man, aged seventy-nine, steam engineer, entered Milwaukee County Hospital September 17, 1931, because of "stomach trouble." He had suffered epigastric pains, after eating, for several years past. These attacks had not been of a severe type. Yesterday, while taking a walk, he was suddenly seized with intense pain in the epigastrium, radiating to the left upper quadrant and the back. This pain was of such a boring character that he had to sit down on the curb. He stated that he had a sense of impending death.

Examination revealed a small nodular mass in the stomach. Liver was large and tender. Râles were heard at the bases of both lungs. The heart was enlarged. The tones were weak and distant. The second aortic sound was accentuated. The peripheral arteries were sclerosed. Blood pressure was 150 systolic and 96 diastolic. Gastro-intestinal fluoroscopy and K.U.B. were negative. The temperature was slightly elevated. The leukocyte count was 10,900. The electrocardiographic tracing revealed inversion of the "T" wave in all leads. A diagnosis of coronary disease was made by our clinical director, Dr. Murphy.

The patient expired on November 29, 1931, following a sudden attack. An autopsy could not be obtained.

Case 6.—R. T., male, aged fifty, entered the Milwaukee County Hospital on May 6, 1931, with the following complaint: He stated that he suffered slight attacks of epigastric pain, several hours after the evening meal, for the past several years. This pain was associated with mild dyspnea. Of late the attacks are becoming more frequent and of a more severe and persistent character. Dyspnea comes on the slightest exertion, which is very distressing to the patient. He has been in the habit of taking large doses of magnesium sulphate during these attacks but no benefit has been derived from this type of medication. Vomiting relieves the pain to some extent.

Examination revealed a well developed but obese male who seemed to be in great distress. Râles were heard at the bases of both lungs. The heart was somewhat enlarged. The tones were weak and distant. A distinct gallop rhythm was made out.

The blood pressure, on entrance, was 180 over 110, while a few days later it dropped to 150 systolic. The temperature remained normal throughout the course of the illness. The blood count also remained normal. The electrocardiographic tracing demonstrated an inversion of the "T" wave in leads I and II.

The patient expired on June 10, 1931. An autopsy was not permitted but a diagnosis of coronary disease was made by Dr. Murphy.

In view of its infrequent occurrence, coronary artery disease, with the gastro-intestinal syndrome, is most difficult to diagnose. This subject should be kept in mind by all clinicians and especially surgeons, not only because of its infrequency, but also due to the fact that some surgeons do not keep up with the progress of internal medicine in general. Unless a surgeon has a general knowledge of internal medicine in general, as well as surgery, a grave mistake may be made, resulting disastrously for the patient.

It was pointed out by Halsey¹¹ that "coronary artery disease accounts for about a fifth to a half of the patients cared for by physicians." This statement should point out to all medical men, physicians and surgeons alike, the great importance of this one disease. While so-called angina pectoris, or beginning coronary sclerosis, is not difficult to diagnose, the atypical type of coronary disease, with the gastro-intestinal syndrome, may not be readily recognized. The condition may, and often is, mistaken for some gastric disorder. In every individual past forty, and especially in those patients whose arteries are sclerosed, it is always well to bear in mind the question of coronary artery disease in evaluating the presenting symptoms and the past history. It is true that the presenting symptoms, in those atypical cases, may lead the physician astray, but the past history will always be of value in making a final diagnosis.

The onset of the condition is nearly always associated with some form of dyspnea, which may be followed by some other sign of beginning cardiac failure. In those cases where the heart is beginning to fail, the diagnosis is comparatively easy but at times the symptoms of cardiac failure are absent. In these cases the detection of arrhythmias and distant heart tones should call the physician's attention to the heart. If the physician watches his patient closely, making frequent examinations of the heart, he will often be rewarded with definite findings of cardiac involvement. One may also find, twelve to twenty-four hours after the

attack, the presence of an elevated temperature and leukocytosis. These signs may be absent, however, throughout the entire course of the illness.

It is possible that these patients may actually have gall-bladder disease, perforating peptic ulcers, or acute pancreatitis, instead of coronary disease. In those cases where there is doubt, an electrocardiographic tracing will establish the correct diagnosis. At times, the electrocardiographic tracing will not show any deviation from the normal but if, in these cases, it is repeated at stated intervals, a definite deviation from the isoelectric level will be detected.

It is wise for the consulting surgeon to take advantage of the electrocardiogram in studying the differential diagnosis of these atypical cases of coronary disease with the gastro-intestinal syndrome. The electrocardiogram is now a part of the necessary equipment of every modern hospital and should be used more often in all cardiac cases, especially in those where there is doubt as to the correct diagnosis. The earliest cardiographic changes that are of the greatest significance in coronary disease are the negativity of the "T" wave and the beginning changes in the ventricular complexes, which are due to interference of the blood supply to the heart muscle.¹⁰

It is well to bear in mind, in considering the differential diagnosis, that coronary disease may develop suddenly, simulating some intra-abdominal accident. The most important are cholelithiasis and cholecystitis. The pain of the former is usually referred to the right scapular region and never to the chest and down the left arm. This pain is usually of the colicky type and can be controlled, in contrast to that of coronary disease, with relatively small doses of opiates. There is extreme tenderness in the gall bladder area. Bile is usually found in the urine.

In acute pancreatitis the pain comes in paroxysms which is intense in character. The upper abdomen is distended and rigid. Extreme shock and frequent vomiting are present.

In peptic ulcers which have perforated, there is sudden pain in the epigastrium, radiating downward but never to the chest. There is tenderness and rigidity of the abdominal walls. In these cases there is no evidence of cardiac failure.

Many other conditions must also be con-

sidered in the differential diagnosis, such as gastric crisis of tabes dorsalis, subdiaphragmatic pleurisy, renal colic, tumors of the cord, and herpes zoster.

The past history, distant heart sounds, changes in blood pressure and other signs of cardiac failure, plus the abnormal electrocardiographic tracing, will enable the attending physician to arrive at a correct diagnosis.

Summary

Coronary artery disease, with the gastro-intestinal syndrome, is a most important clinical entity, and often very difficult to diagnose. Surgeons, in general, should have a clearer knowledge of this subject in considering the differential diagnosis. The internist should also be acquainted with various syndromes of coronary disease.

Coronary artery disease occurs more frequently in males past forty, especially in those leading a strenuous life, which predisposes to early arterial degeneration.

Previous history of periodic attacks of "indigestion," high blood pressure, and dyspnea on exertion are significant factors in coronary disease.

As a result of coronary occlusion the infarcted area in the heart may extend to the endocardium, resulting in a mural thrombus. This may result in embolism leading to various catastrophes.

Coronary arteries are not "end arteries," as anastomoses can be demonstrated.

Pain is of an intense and persistent type and referred through the sympathetic system.

Either coronary artery may be involved but the anterior descending branch of the left is involved more often than the others.

Onset of coronary artery disease may simulate any gastric disorder. The history, past and present, is of vast importance in evaluating the symptoms.

The following points help in arriving at a correct diagnosis: Dyspnea, rales in the bases of both lungs, fall in a previously elevated blood pressure, enlargement of the liver with tenderness, enlargement of the heart with weak and distant tones, irregularities, and pericardial friction rubs.

Fever and leukocytosis are usually present 24 to 48 hours following the attack.

The electrocardiographic tracing is of diagnostic importance in these cases. It should be used more often by physicians and surgeons alike.

Coronary artery disease should be differentiated from the following conditions: Cholelithiasis, cholecystitis, perforated peptic ulcers, gastric crisis of tabes dorsalis, subdiaphragmatic pleurisy, renal colic, tumors of the cord, and herpes zoster.

References

1. Anderson, J. P.: Differentiation between coronary thrombosis and acute abdominal conditions. *Jour. A. M. A.*, (Sept. 29) 1928.
2. Barnes, A. R., and Ball, R. G.: The incidence and situation of myocardial infarction in 1,000 consecutive post-mortem examinations. Staff meetings of the Mayo Clinic, (Dec. 17) 1930.
3. Barnes, A. R., and Whitten, M. B.: Study of T-wave negativity in predominant ventricular strain. *Arch. Int. Med.*, (October) 1929.
4. Case Report: *New England Jour. Med.* Case 18051, p. 236, (Feb. 4) 1932.
5. Christian, H. A.: Cardiac infarction (coronary thrombosis): An easily diagnosable condition. *Amer. Heart Jour.*, (December) 1925.
6. Christian, H. A.: Diseases of the heart. Oxford Monograph on Diagnosis and Treatment. Volume III.
7. Coffen, T. Homer, and Rush, Homer P.: Acute Indigestion in relation to coronary thrombosis. *Jour. A. M. A.*, (Dec. 8) 1928.
8. Eggleston, C.: Coronary thrombosis. Textbook of Medicine by Cecil. Second Edition.
9. Faulkner, J. M., Marble, H. C., and White, P. D.: The differential diagnosis of coronary occlusion and of cholelithiasis. *Jour. A. M. A.*, (Dec. 27), 1924.
10. Gilchrist, A. R., and Ritchie, W. T.: The ventricular complexes in myocardial infarction and fibrosis. *Quart. Jour. Med.*, (April) 1930.
11. Halsey, R. H.: Etiology of heart disease. *Jour. A. M. A.*, (Feb. 20) 1932.
12. Hardt, L. L.: Coronary thrombosis simulating perforated peptic ulcers. *Jour. A. M. A.*, 82:692, 1924.
13. Herrick, James B.: Clinical features of sudden obstruction of the coronary artery. *Jour. A. M. A.*, (Dec. 7), 1912.
14. McCrae, T.: Angina pectoris: Is it always due to coronary artery disease? *Amer. Jour. Med. Sci.*, (January) 1930.
15. Mackenzie, Sir J.: Principles of Diagnosis and Treatment in Heart Affections. Third Edition.
16. Osler, Sir William: Angina Pectoris and Allied States, 1897.
17. Osler, Sir William: Principles and Practice of Medicine. Revised and enlarged by McCrae. Eleventh Edition.
18. Portis, B.: A case of coronary thrombosis simulating an acute surgical condition of the abdomen. *Surg. Clinics No. Amer.*, (April) 1930.
19. Smith, F. M.: Coronary artery disease. *Jour. Iowa State Med. Soc.*, (June) 1931.
20. Smith, F. M.: Angina pectoris. *Jour. Iowa State Med. Soc.*, (July) 1931.
21. Smith, F. M.: Coronary occlusion. *Jour. Iowa State Med. Soc.*, (August) 1931.
22. Smith, F. H.: Coronary disease as a factor in failing heart. *Virginia Med. Month.*, (December) 1931.
23. Steven, J. D.: Lectures on the fibroid degeneration and allied lesions of the heart, and their association with disease of the coronary artery. *The Lancet*, (Dec. 31) 1887.
24. Sutton, D. C.: Coronary occlusion. *Med. Clinics No. Amer.*, (July) 1928.
25. Sutton, D. C., and Lueth, H. C.: Pain. *Arch. Int. Med.*, (June) 1930.
26. Warfield, L. M.: Tice's Practice of Medicine. Volume VI.
27. Whitten, M. B.: Relation of distribution and structure to myocardial infarction. *Arch. Int. Med.*, (March) 1930.
28. Willius, F. A.: Infarction of the myocardium. *Atlantic Med. Jour.*, (October) 1925.
29. Willius, F. A.: Prognosis in heart disease. *Minnesota Med.*, (May) 1931.
30. Willius, F. A., and Giffin, H. Z.: The anginal syndrome in pernicious anemia. *Amer. Jour. Med. Sci.*, (July) 1927.

THE DEVELOPMENT OF THE X-RAY DIAGNOSIS OF GALL-BLADDER DISEASE*

ARTHUR R. BLOOM, M.D.†

DETROIT, MICHIGAN

The history of x-ray diagnosis of the gall bladder can be dated from 1899, when Carl Beck³ of New York presented two cases in which he demonstrated gall stones on a radiograph. In 1906, he⁴ stated that a gall bladder containing stones and fairly well filled with bile leaves a tumor-like shadow on the plate. This important observation passed unnoticed for nine years. After Beck's paper there were sporadic reports of radiographic demonstration of stones in isolated instances, but in 1913 Case⁷ reported the first series. He demonstrated stones in 40 out of 1,000 routine examinations. His work was followed by reports from Cole⁹ and Pfahler.²³ In 1914, George and Gerber¹³ stated there were two kinds of gall stones, namely: those containing large amounts of calcium, which could be easily demonstrated, and those containing little or no calcium, which could not be demonstrated. The reports of finding gall stones by x-ray gradually increased, and in 1924, Carmen, MacCarty, and Camp⁶ reported the

findings of 38.4 per cent of gall stones in 226 operated cases.

Secondary Findings

The era of secondary findings began with Pfahler's publication, in 1911. He reported that he had observed the displacement of the stomach and duodenum to the right and upwards as evidence of adhesions from a cholecystitis. Further signs were reported by Case,⁷ in 1913, and Cole,⁹ in 1914. From this work the necessity of doing a complete gastro-intestinal examination in gall bladder cases was realized.

George and Leonard¹⁴ in their book, "The

*Read before the North End Clinic, January 23, 1936, as one of the third series of the Dr. Max Ballin Memorial Lectures.

†Dr. Bloom was graduated from the University of Illinois School of Medicine in 1922. He served his internship at the Michael Reese Hospital, 1922-24. A Diplomate of the American Board of Radiology, he has been Radiologist at the North End Clinic, Detroit, since 1927.

Pathological Gall Bladder," reported the following indirect evidence:

Deformities Due to Pressure.—These deformities consist of a semicircular, smooth pressure defect most commonly seen in the cap, but often at the antrum of the stomach, the second portion of the duodenum, and sometimes the colon. Their explanation of this finding is as follows: They believe that the tension in a normal gall bladder is less than that of the food-filled duodenum, stomach or bowel, whereas in a pathological gall bladder which consists of a thickened wall or increase in fluid, or the presence of stones, the tension is greater. The diseased gall bladder pressing on these organs produces a "seat" which can be demonstrated when the stomach and duodenum are filled with barium.

Deformities Due to Adhesions.—Adhesions may cause a change in contour and position of various parts of the gastrointestinal tract. Adhesions around a duodenum will produce a bizarre and toothed appearance but the irregularity is inconstant. In some instances, the deformity may be so great as to completely obliterate the normal outline of the cap. The second portion of the duodenum may be displaced towards the right and upwards and may be narrow and irregular. The jejunum and colon may also be displaced to the right. A small portion of the transverse colon may present the appearance of being pulled out.

Spastic Changes.—These changes may occur in the stomach or duodenum. They are a reflex manifestation. The distal third of the stomach may become uniformly contracted, producing a tubulated outline an inch or so in diameter.

Filled Ampulla Vater.—This is usually demonstrated as a patch of barium opposite the medial side of the second portion of the duodenum which is due to a patulous ampulla Vater. This finding is always associated with a pathological gall bladder.

Many authors consider the indirect evidence far more important than the direct. I believe that the demonstration of these signs is still of considerable value and it is to be regretted that of late years they have been minimized.

Primary Shadow

Although, as early as 1906, Beck⁴ claimed that the diseased gall bladder often casts a shadow on the x-ray film, it was not until

1915, when George,¹² and in the following year with the collaboration of Leonard,¹⁵ announced their observations. Their contentions were based on the following premises: While examining plates for evidence of stones, they frequently saw a pyriform shadow in the gall bladder region which either surrounded the stones or was alone. They followed these patients to the operating room and found that the gall bladder was pathological. Applying the results of these observations and calling all cases on whom a shadow was visualized pathological, they had a high incidence of operative verification. These observations were based on a principle sound in physics and pathology, for when the gall bladder becomes diseased its density is increased over the normal because the wall is thickened, or the bile is thickened, or there are stones present.

This was accepted by many clinicians and roentgenologists, notably, Moynihan, Kirkin, who was then in Muncie, Indiana, and Arens of the Michael Reese Hospital. George and Leonard¹⁵ quoted their statistics as 88.4 per cent correct diagnoses. Our findings¹¹ at Michael Reese Hospital, based on the combination of the gall bladder shadow and secondary findings, were as follows:

The diagnosis was correct in 88 per cent of pathological cases verified by operation.

It was correct in 85 per cent of normal cases verified by operation.

It was considered correct in 75 per cent of normal cases not operated upon. These cases were sent to the x-ray department without any history so that the roentgenologist did not know whether they were normal or pathological.

These findings were not universally accepted by all roentgenologists. I believe that one of the reasons for this skepticism was that the method required painstaking technic on the part of the roentgenologist and patient. It also required considerable training in identifying the shadow. For several months, after I first started in roentgenology, I was unable to recognize a gall bladder on a primary film until it was pointed out to me. I would marvel at the clearness of the shadow and feel chagrined that I had missed it at first. Case contended that various organs, such as the duodenum, antrum of the stomach or small bowel, cast a shadow which might be mistaken for a gall bladder. At the Michael Reese Hospital we took another film in the same position,

using the same technic after the patient had a barium meal. This would outline the confusing shadows. Since the advent of cholecystography, we compare the dye-filled shadow with the primary plate.

Notwithstanding the many controversial opinions, the normal gall bladder is not routinely visualized on primary films. In spite of the severe criticism of the primary film or older methods, I still believe it has its place and should not be discarded. I believe that the gall bladder which casts a shadow on the primary film is diseased in spite of the fact that it may function normally as to filling, concentration and emptying of the dye.

Cholecystography

In the latter part of the 19th century, von Bayer discovered the phthaleins and in the early part of the 20th century it was found that certain of these phthaleins were excreted almost completely in the liver. In 1909, Abel and Rowntree,¹ while searching for a hypodermic purgative, discovered phenoltetrachlorophthalein which was developed as a substance for liver function and phenolsulphonophthalein for kidney function.

In the early part of February, 1924, Graham, Cole and Copher¹⁶ announced their monumental work of cholecystography which revolutionized the x-ray study of gall bladder disease. Basing their work on that of Abel and Rowntree¹ they tried out various derivatives of the phthalein group. In these they substituted radicals of high atomic weight for those of low atomic weight. Among the many substances which they tried out was tetraiodophenolphthalein but discarded it because they thought it was too toxic. They later selected the calcium salt of tetrabromophenolphthalein. This they soon discarded for the sodium salt.

Whittaker and Milliken²⁸ shortly afterwards demonstrated that approximately one-half as much of sodium tetraiodophenolphthalein need be used as the tetrabromophenolphthalein salt, and the smaller dose was less toxic. This was soon confirmed by Graham and Cole.

Menees and Robinson²¹ were the first to use the oral administration of dye. They tried out various types of containers which would not dissolve in the stomach but disintegrate in the intestines. They used salol and keratin coated capsules but found best

results with formalin hardened gelatin capsules. Various types of commercially prepared capsules appeared on the market but our results have been more or less satisfactory with them.

Kirklin¹⁸ recommended the use of four grams of pure dye, freshly dissolved in one ounce of distilled water and given in grape juice after a fat-free supper. I have used this technic for several years and have found it entirely satisfactory.

For a long period there was quite a controversy as to which method should be used. Men like Sherwood Moore, Case, Blaine and others insisted that the intravenous was preferable to the oral administration, because a known quantity of dye was put into the blood stream and there was no chance of lack of absorption from the gastro-intestinal tract, which they considered a variable factor. However, Kirklin found that the difference of efficiency between the two methods did not amount to more than one or two per cent.

The drawback to intravenous injection aside from the greater inconvenience is that there is a possibility of a thrombophlebitis resulting at the site of injection. Workers noticed that they received more or less severe reaction following the intravenous method. In 1924, we had a near fatality at the Michael Reese Hospital after the injection of sodium tetrabromophenolphthalein. I have never used the intravenous method since.

Palmer and Ferguson,²⁴ in 1933, reported that out of 2,135 patients one-half had reactions ranging from transitory to severe. Three cases were very severe and there was one death.

Recently the intensified method of oral cholecystography has been advocated by some. This is based on the observations of Antonucci,² that adding to the glucose reserve of the body may accelerate oral cholecystography, and of Sandstrom,²⁵ that giving the dye in fractional doses increased the density of the shadow. In 1927, Feldman¹⁰ recognized the fact that large doses must be given to obtain the best results.

Stewart and Illick²⁶ recommended a method which is complicated and tedious. A simpler procedure is the giving of two doses of dye; one after lunch and one after supper, which consists of carbohydrates. The drawback to this method is that more pathological gall bladders will fill. However, in

these cases there must be convincing clinical evidence of disease before this type of a gall bladder is removed.

Mechanism

As stated above, the principle of cholecystography is that the dye is taken up by the blood stream, secreted by the liver through the biliary ducts into the gall bladder where it is concentrated. The greatest density is reached at eighteen hours after the oral administration of dye. It will contract almost completely two hours after the fat meal.

In order for the gall bladder to be visualized it is necessary that:

1. The liver secrete the dye.
2. The hepatic, cystic and other ducts be patent.
3. The gall bladder have the ability of emptying and filling itself.
4. That the gall bladder once filled be of sufficient size to cast a shadow.
5. The gall bladder be able to concentrate the dye.

Failure of the gall bladder to fill at all or faintly may be due to the following:

1. A stone obstructing the cystic duct.
 2. Edema or spasm of the cystic duct.
- This type will give a lack of filling at one time and a good filling, another. These patients should be put on antispasmodics and sedatives and the test repeated.

3. Bronne and Schüller⁵ believed that an inflammatory process of the mucosa may cause too rapid absorption of the dye.

4. Chiray and Panel⁸ believe that an inflammatory process of the mucosa interferes with concentration of the dye.

5. The walls of the gall bladder may be abnormally thickened and the lumen very small, and there would be insufficient dye to cast a shadow.

6. The bile in the gall bladder may be too thick to mix with the dye.

7. The gall bladder may be packed with non-opaque stones so that no dye can enter.

8. Failure to observe the proper technic. Kirklin¹⁹ claims that a meal containing fats taken before ingestion of the dye results in 25 per cent more cases of faint or no shadow than if the meal contains no fats.

9. Many authors state that vomiting within one hour shows no shadow. Although this seems logical, I have seen some of the best shadows in patients who vomited.

10. Bowel derangement may interfere

with absorption. Lahey and Jordan²⁰ claim that in twenty-eight out of sixty-five cases, the gall bladder at first failed to fill. When the test was repeated five to ten days after bowel management, the gall bladder presented a normal shadow.

11. Many claim that high gastric acidity will interfere with the gall bladder shadow. My experience, as well as that of Stewart and Illick, does not bear this out.

12. Carcinoma of the pancreas or liver may result in a faint or absent shadow. The differential diagnosis can not be made from the Graham-Cole test. It is interesting to note that these cases also present a gall bladder shadow on the primary film.

Deformity of the gall bladder may be due to an anomalous gall bladder or to pericholecystic adhesions. Occasionally, surgeons have reported normal gall bladders on operation.

Failure of the gall bladder to contract is usually due to a thickened or rigid wall.

Whittaker²⁷ has shown that the gall bladder definitely emptied into the duodenum through the cystic and common duct and disproved the theory of Sweet and Halpert that the bile was absorbed by the lymphatics. He found that the gall bladder empties only during digestion of fats in the duodenum and intestine. The emptying is produced primarily by the tonus of the wall of the gall bladder. No one has ever demonstrated peristaltic waves of the gall bladder. He also found that cutting one or both vagi or stimulating them electrically or by drugs or denervating the gall bladder has no effect. He could find no direct evidence of expulsive hormonal action although Ivy¹⁷ later announced cholecystokinine.

The action of the sphincter papillæ seems to be to allow the gall bladder to fill during the interval between periods of digestion but the vesicles will not empty after the sphincter is cut unless there is ingestion of the fats.

It must be realized that cholecystography is only a test of physiological function, except when it demonstrates stones. Furthermore it must be realized that a gall bladder may be diseased and still function normally. A simple proof of this is the fact that cholesterol stones are frequently demonstrated on a film after cholecystography. If the gall bladder did not function, the negative shadows of the stones would not be seen. Richter was among the first to cau-

tion against the acceptance of a normally functioning gall bladder as ruling out gall bladder disease. Cholecystography is only one sign or symptom in the diagnosis of gall bladder disease. The findings must be properly evaluated with the history and physical examination.

The percentage of accuracy of cholecystography may be stated as follows:

	Per cent
Demonstration of stones.....	100
Non-filling	95
Faint filling	50-75
Normal filling	70-80

In conclusion, I believe that the best results are obtained by using a combination of the primary film method, cholecystography and a gastro-intestinal examination. Whenever I see a shadow on the primary film, I consider this evidence of disease and a normally filled gall bladder serves only to confirm the original shadow.

Bibliography

1. Abel, J. J., and Rowntree, L. G.: On pharmacological action on some phthaleins and their derivatives with special reference to their behavior as purgatives. *Jour. Pharmacol. and Exper. Therapy*, 1:231, 1909-1910.
2. Antonucci, C.: *La Cholecystographie Rapide*. Presse Med., 40:983, 1932.
3. Beck, C.: On detection of calculi in liver and gall bladder. *New York Med. Jour.*, 73:73, (Jan. 20) 1900.
4. Beck, C.: Cholelithiasis. *New York Med. Jour.*, 84:469, (Sept. 8) 1906.
5. Bronne, H., and Schuller: *Klin. Wchnschr.*, 9:1625, (Aug. 30) 1930.
6. Carman, R. D., MacCarty, W. C., and Camp, J. D.: Roentgenologic diagnosis of cholecystic disease. *Radiology*, 2:80, (February) 1924.
7. Case, J. T.: Roentgenoscopy of the liver and biliary passages with special references to gall stones. *Jour. Am. Med. Assn.*, 61:921, (Sept. 20) 1913.
8. Chiray, M., and Panel, J.: *Traite de Physiologie, Normale et Pathologique*. Paris: Masson et Cie, vol. III, 1926.
9. Cole, L. G.: Roentgenographic diagnosis of gall stones and cholecystitis. *Surg., Gynec. and Obst.*, 18:218, (February) 1914.
10. Friedenwald, J., Feldman, M., Kearney, F. X.: Further experimental studies in cholecystography. *Jour. Amer. Med. Assn.*, 89:195, (July 16) 1927.
11. Friedman, J. C., Strauss, A. A., Arens, R. A.: A clinical radiological study of the gall bladder. *Radiology*, (August) 1925.
12. George, A. W.: Further notes on roentgen diagnosis of gall stones. *Interstate Med. Jour.*, (Supplement) 23:13, 1916.
13. George, A. W., and Gerber, I.: Observations from study of a thousand gastro-intestinal cases. *Am. Jour. Roentgenol.*, 2:592, 1915.
14. George, A. W., and Leonard, R. C.: Pathological gall bladder. *Annals of Roentgenology*. New York: P. B. Hoeber, 1922, vol. II.
15. George, A. W., and Leonard, R. D.: Roentgen diagnosis of pathological gall bladder. *Amer. Jour. Roentgenol.*, 4:321, 1917.
16. Graham, E. A., and Cole, W. H.: Roentgenologic examination of gall bladder: Preliminary report of new method utilizing intravenous injection of tetrabromophenolphthalein. *Jour. Am. Med. Assn.*, 82:613, (Feb. 23) 1924.
17. Ivy, A. C., and Bergh, G. S.: The applied physiology of the extrahepatic biliary tract. *Jour. A. M. A.*, 103:1500, (Nov. 17), 1934.
18. Kirklin, B. R.: Cholecystography, a general appraisal. *Arch. Surg.*, 18:2246, (June) 1929.
19. Kirklin, B. R.: Necessity for accurate technique in oral cholecystography. *Amer. Jour. Roentgenol.*, 25:595, (May) 1931.
20. Lahey, F. H., and Jordan, S. M.: *Trans. Am. Gastroenterological Assn.*, p. 54, 1930.
21. Menees, T. O., and Robinson, H. O.: Oral administration of sodium tetrabromophenolphthalein: Preliminary report. *Am. Jour. Roentgenol.*, 13:368 (April) 1925.
22. Pfahler, G. E.: Gastric and duodenal adhesions in the gall bladder region, and their diagnosis by roentgen ray. *Jour. Am. Med. Assn.*, 56:1777, (June 17) 1911.
23. Pfahler, G. E.: Roentgen rays in diagnosis of gall stones and cholecystitis: Improvement in technic. *Jour. Am. Med. Assn.*, 62:1304, (Apr. 25) 1914.
24. Palmer, W. L., and Ferguson, A. N.: Intravenous cholecystography, reaction and contraindication. *Trans. Assn. of Amer. Phys.*, 48:385, 1933.
25. Sandstrom, C. De la: Cholecystographie par voie buccale et de sa Valeur. *Jour. de radiol. et d'electrol.*, 16:358, 1932.
26. Stewart, W. H., and Illick, H. E.: Advantages of intensified oral cholecystography. *Amer. Jour. Roentgenol.*, 33:624, (May) 1935.
27. Whittaker, L. R.: The mechanism of the gall bladder. *Amer. Jour. Physiol.*, 78:411, (October) 1926.
28. Whittaker, L. R., and Milliken, G. A.: A comparison of sodium tetrabromophenolphthalein with sodium tetraiodophenolphthalein in gall bladder radiography. *Surg., Gynec. and Obstet.*, 40:17, (January) 1925.

ADRENAL CORTICAL INSUFFICIENCY

ROBERT L. SCHAEFER, M.D., and FRED L. STRICKROOT, M.D.

DETROIT, MICHIGAN

Despite the denial of the occasional experimentalist, the development of a potent adrenal cortical extract has materially altered the clinical condition known as Addison's disease. This alteration is principally in the immediate prognosis, the ultimate prognosis being in no way affected. The life span of these patients is definitely increased and they are made more comfortable. The medicament employed in this series of cases is termed "Adrenal Cortex Extract" (Upjohn).*

The clinical picture of Addison's disease is characterized by a striking myasthenia with or without cachexia, marked gastro-intestinal symptomatology, pigmentation, and, not infrequently, so-called Addisonian crises. This new form of therapy is capable of relieving the above complex with the exception of the pigmentation, though this, too, when sole intent of adding three indisputable cases of total Addison's disease and two cases of mild, is affected. This publication has the

*This was furnished through the courtesy of Dr. George Cartland and Mr. L. W. Bristol of the Upjohn Company.

partial Addison's, or partial adrenal cortical insufficiency.

The incidence of Addison's disease is comparatively rare, and it would seem apparent that the indications for this new organotherapeutic product would be of only occasional value. To the interested physician, however, it has opened a new field for clinical investigation, and the astuteness of the diagnostician is challenged in determining other syndromes which may be related to a cortical hormone deficiency giving to this product a more generalized usage. It is a well known fact that the commonest etiological factor in the production of Addison's disease is tuberculosis, and it is usually associated with serious tuberculous infection elsewhere in the body, usually pulmonary, though syphilis, too, must be considered. Recent clinical research indicates that adrenal atrophy is also a considerable factor in production of this disease.³

The following statistical data were collected by William L. Brosius, pathologist at Herman Kiefer Hospital, Detroit. From 1930 to 1935 inclusive there were 8,133 tuberculous admissions. Addison's disease was recognized clinically in only two cases, one of which was confirmed by autopsy. However, pathological diagnosis of tuberculosis of the adrenals was made in seven cases. In none of these seven were there any associated Addisonian symptoms. Two of the patients reported in this publication as total Addisonian cases are at the present writing confined in this institution. The third, in which the diagnosis was confirmed at autopsy, was a private patient. In the two partial deficiencies a clinical diagnosis of tuberculosis could not be established.

The extract which was employed is prepared from fresh beef adrenal glands which are frozen upon removal from the animal and shipped to the laboratory frozen in dry ice. These glands are chopped in a frozen condition and extracted immediately. Enzymatic changes at the early crude stages are minimized by working in the cold. In the early steps of the process, the active material is obtained as a crude aqueous extract. This is further purified by the employment of suitable immiscible solvents which accomplish the complete removal of fats, phospholipins, proteins, epinephrine and undesirable substances which are responsible for the toxic reactions often observed following the injection of crude

extracts. The purified material is water-soluble and is supplied in physiological saline containing 10 per cent alcohol. The extract is sterilized by Berkfeld filtration, packaged in sterile vials and subjected to the usual tests for sterility.

The finished extract is a sterile aqueous solution containing 0.9 per cent sodium chloride and 10 per cent alcohol. The pH is approximately 5. Each 1 c.c. contains the adrenal cortical hormone fraction prepared from 40 grams of fresh gland. The extract contains, exclusive of added sodium chloride, 0.7 to 1.0 mg. of solids per c.c. The total nitrogen is less than 0.1 mg. per c.c. of extract. The epinephrine content of the solution is less than 1 part in 400,000 as determined by the dog blood-pressure method.

Each lot of extract is assayed by the adrenalectomized dog method of Pfiffner, Swingle, and Vars.² In addition, it is also tested on adrenalectomized rats using the procedures similar to those of Kutz.¹

1. Doses of 5 c.c. (per animal) injected subcutaneously in guinea pigs weighing 300 to 400 grams produce no toxic symptoms.
2. Doses of 5 c.c. per kilogram injected intravenously in rabbits produce no toxic effect upon the circulation or respiration.

The human dosage of any given product cannot be estimated arbitrarily in cubic centimeters nor grains. The tolerance and the needs of every patient are entirely individual and administration is so determined. In this instance or in any other where a hormonal therapeutic agent is employed an adequate dosage is attained only when a biological end-result is achieved.

Case Reports

Total Addison's Disease

Case I.—F. K., female, age thirty-two years, first came under observation during her adolescent years. There was nothing unusual in her childhood. At the age of twenty she was operated upon for chronic appendicitis. The pelvis was explored but nothing abnormal noted. At the age of thirty (November, 1933) her Addisonian symptoms first appeared and were characterized by severe upper abdominal pain and nausea and vomiting over a period of four days. The nausea persisted. She was bedridden for four weeks and the myasthenia became progressively worse during this period. There was a weight loss of from 185 to 130 pounds. She was treated for probable acute abdominal condition though the complete gastro-intestinal x-ray was negative. Examination at this time showed moderate emaciation and diffuse generalized bronzing but with no particular accentuation except in the region of the vagina and rectum. Numerous jet black freckles were seen about the face and also in the membranes of the mouth and vagina.

Chest examination revealed some persistent crepitation in the left upper front and back and tenderness over the right kidney. Blood pressure, 90/70. Patient was then placed on 120 grains of sodium chloride daily with slight beneficial effect.

She was not seen until three months later when a call at the home was made. She was in a state of Addisonian shock and was admitted to the hospital. A daily dosage of 5 c.c. of eschatin (Parke, Davis and Company) brought about a good therapeutic response. At the time of discharge she was on a daily dosage of 2 c.c. This was reduced to 2 c.c. twice weekly. Sodium chloride was continued. Her weight was maintained between 105 and 110 pounds, and she was able to perform light household duties and walk a few blocks until December 11, 1934, when she exhibited signs of free fluid in the abdomen. Flat x-ray plates of her kidneys were negative for any abnormal shadow in the adrenal area. X-rays of her chest were also negative.

By February of 1935 the signs of free fluid in the abdomen disappeared. She was then placed upon 2 c.c. of adrenal cortex extract (Upjohn) three times a week. She was maintained on this dosage until October, 1935, when a febrile attack occurred characterized by temperature ranging from 101 to 103 with acute pleuritic pain in the right lower chest. Nothing abnormal was heard on auscultation. Pain persisted for three days and was febrile for seven days. Temperature fell by lysis. Her exhaustion, myasthenia, and gastro-intestinal symptoms suggested another Addisonian crisis. This persisted for two weeks. The dosage was increased to 3 c.c. twice daily without effect. At the end of the second week her symptoms were so aggravated that she was considered in extremis and the family so advised. She was then placed on 5 c.c. three times daily, and the therapeutic result was quite remarkable. She became comfortable and her strength rapidly returned. After a week on this dosage she was able to leave her bed, and it was decreased to 5 c.c. twice daily.

The patient was maintained on the above dosage until December 21, 1935, when she was seen in the office feeling comparatively well. On the twenty-fourth of December, three days later, following a hearty dinner she retired at 9:30 P. M. During the night she awakened complaining of mild discomfort in the abdomen. She immediately began to vomit and her vomiting was continuous. Both the husband and the mother remarked that the emesis far exceeded any possible intake she consumed that evening. In the period of one-half hour she vomited at least two to three quarts of clear fluid and she was apparently in extremis. The patient died four hours later.

Laboratory: Two blood counts were normal. Urinalyses were constantly normal except during two periods of vomiting the specimens revealed a slight acetonuria. The following isolated blood sugar determinations were run during comparative state of comfort: 71.4 mg. and 69 mg. per 100 c.c. blood. During a period of crisis when glucose was being administered intravenously the blood sugar was 131.0 mg. Blood nonprotein nitrogen studies were 25 mg. and 29 mg. per 100 c.c. blood. Basal metabolic rates were minus 22 and minus 29 per cent. Blood chlorides during time of crisis at the hospital were 386.0 mg. Blood pressure varied from 80 to 105 systolic and 65 to 80 diastolic.

Autopsy† revealed a bilateral pulmonary tuberculosis. Tuberculosis of both ovaries, tubes, and endometrium. Pan-abdominal tuberculosis with a

nutmeg liver. Tuberculosis pericholecystitis and perihepatitis. Tuberculous splenitis, nephritis, endometritis, salpingitis, and oöphoritis. The left adrenal showed complete cessation with calcification and the gland was a calcified body measuring 5 by 1.5 by 1 cm. Grayish white, chalky appearance and very friable. On both gross and microscopic examination no evidence of adrenal tissue was found. The right showed practically the same picture though a very small part of adrenal tissue could be recognized microscopically. This was infiltrated by pin-point tubercles.

Case 2.—H. A., male, age sixty-five years, was admitted to Herman Kiefer Hospital October 15, 1935. His chief complaints at that time were dyspnea and palpitation of two months' duration; nausea and vomiting for six months; anorexia, marked muscular weakness and loss of weight for twelve months; and cough for eighteen months. Two months previous to his admission he was seen at St. Joseph's Mercy Hospital. Because of the pronounced gastro-intestinal picture a complete gastro-intestinal study including x-ray was made to eliminate carcinoma of the stomach, which was negative. X-ray of the lungs at that time revealed a moderately advanced tuberculosis of a mixed type involving the upper half of the left lung which was verified at Herman Kiefer Hospital.

On physical examination one was struck by his marked myasthenia. It was difficult for him to cooperate in the necessary movements entailed in physical examination, such as sitting up. There was an increased pigmentation of the skin of the hands, wrists, heels, scrotum, neck, and the mucosa. He was immediately placed upon 3 c.c. of adrenal cortex extract (Upjohn) twice daily and 150 grains of sodium chloride enteric coated tablets daily with a marked therapeutic response. All gastro-intestinal symptoms disappeared within forty-eight hours. He regained an excellent appetite and his temperature, which had ranged from 99 to 100, remained within normal limits. At the expiration of one week he returned to his home under the observation of his physician and he remained essentially the same, definitely improved, but after two weeks failed to take his injections with recurrence of his former symptoms. He was then admitted to Herman Kiefer Hospital. On admission his temperature was 102.5. Left artificial pneumothorax was induced November 5, 1935, and has been maintained. In December of 1935 a pleural effusion developed. On October 24, 1935, he was started on 93 grains of sodium chloride daily. This resulted in no improvement and on October 30, 1935, adrenal cortex extract (Upjohn), 3 c.c. every other day, was initiated. This gave very little improvement and on November 11 the dosage was increased to 3 c.c. daily. The sodium chloride in enteric coated tablets was continued. The same initial improvement in his Addison's symptoms was then again noted and has been maintained to the present writing though there has been a progression of his pulmonary tuberculosis. From December 20 to 27 and the week following of January 4, 1936, no medication was available and there was a return of all his Addisonian symptoms which promptly responded to re-institution of the same dosage.

Laboratory: Consistently positive sputum for acid-fast bacilli. Normal findings in the urine. Kahn test was negative. The blood count showed red blood cells 3,150,000; white blood cells 6,700; hemoglobin, 61 per cent; and differential normal. Basal metabolic rate was a minus 5 per cent. Fasting blood sugar studies were 109 mg. and 94 mg. per 100 c.c. blood. Blood nonprotein nitrogen determinations were 28 mg. and 33 mg. per 100 c.c. blood. Blood chlorides were 437 mg. and 466 mg.

†Autopsy through the courtesy of Dr. D. G. Christopoulos, Pathologist, St. Joseph's Mercy Hospital.

Case 3.—P. A., male, aged thirty-eight years, was admitted to William H. Maybury Sanitarium July 24, 1935. He was complaining of extreme fatigue, loss of weight, and gastro-intestinal symptoms. In November of 1934 he was checked by a physician after having lost 15.0 pounds, and he was pronounced in sound health. He continued to work until April, 1935, when he complained of cold feet. The factory physician advised him to go home and to get a private physician. His complaints were diagnosed as gastritis and he was given some medicine to take. He then went to another physician who advised an operation for appendicitis because of the prominence of his gastro-intestinal symptomatology. Following this he went to the University Hospital of Ann Arbor, where diagnosis of pulmonary tuberculosis was made from the x-ray, which revealed the moderately advanced tuberculous process, mostly productive in type involving the upper third of both lungs with infiltrations showing greater density on the right. No cavitation was noted. All sputum examinations then and since have been negative. On June 25, 1935, left phrenic crushing was done. There had been a weight loss from normal of 170 to 180 pounds to 137 pounds.

Physical examination revealed a white male with presenile changes. There was generalized bronzing with accentuation of the face, neck, elbows, hands, scrotum, and anal region. Jet black moles were noted over the face and mucous membranes of the mouth particularly, though there were a few scattered over the entire body. Patient was seen at the time medication was withdrawn, and his myasthenia was most pronounced. It was extremely difficult for him to change his position in bed or even elevate his arms.

From September 21, 1935, to January 2, 1936, he received 1 c.c. of adrenal cortex extract (Upjohn) twice daily with definite subjective improvement. The hormone was then withdrawn and vomiting recurred after every meal. He felt very weak and apparently lost considerable weight. On January 9 the dosage was re-instituted at 3 c.c. plus 105 grains of sodium chloride in enteric coated tablets daily. There was definite improvement in his emesis though there was still considerable myasthenia. The dosage was then increased to 10 c.c. daily and the myasthenia was improved. He was able to move about in bed without any great apparent effort. The dosage was then decreased to 5 c.c. daily and so continued until it was determined that he did much better on 10 c.c. daily, at which time he was returned to the latter dosage for maintenance. The last report reveals that the patient is not entirely confined to bed.

Laboratory: Urine was normal. Blood count revealed red blood cells 3,760,000; white blood cells 9,400; hemoglobin 79 per cent; differential normal. Sputum was repeatedly negative for acid-fast bacilli. Blood chlorides were 240 mg.; 180 mg. and 233 mg. per 100 c.c. blood. Blood sugar was 77 mg. Blood nonprotein nitrogen determinations were 33 mg. and 41.5 mg. per 100 c.c. blood. Basal metabolic rates were minus 3.4 and minus 9 per cent. The blood gave a negative Kahn reaction but a positive four plus Wassermann reaction. Because of the positive Wassermann specific anti-luetic treatment was advised to determine the possible etiological factor, but this in no way altered the roentgen evidence of tuberculosis in the chest.

Discussion.—In Case 1 the unusual thing revealed at autopsy was the profound, generalized, tuberculous abdominal involvement which gave rise to practically no subjective symptoms though free fluid in the abdomen

twice during the course of her illness was suspected. In extremis she presented a marked water loss through vomiting. If any import can be attached to the history of the mother and husband the loss through this channel would exceed the intake in twenty-four hours by at least one gallon. At autopsy there was almost total lack of recognizable adrenal tissue. In Cases 1 and 3 there were no changes in pigmentation from the original. In Case 2 the patient had increased pigmentation of the hands, wrists, heels, scrotum, neck, and rectal mucosa, and at this time it is almost entirely cleared. At the present time it is noted that this man has had a total relief of all his Addisonian symptoms, but his general progress is hindered by a marked advance of his tuberculosis. There has been little, if any, effect upon the associated lowered blood pressure.

That there is a profound disturbance in sodium metabolism in this disease is evidenced by Case 3, the blood chlorides ranging from 180 mg. to 240 mg., the highest. There was no appreciable improvement in the blood chlorides of this patient despite the administration of enteric coated tablets of sodium chloride, but this can be explained on the basis that they passed through the gastro-intestinal tract unchanged. There was also a slight depression in the isolated blood chlorides in Case 1 during a crisis, being 386 mg.

Occasionally blood chemistry studies may be of diagnostic value, but in general the symptomatology is so outstanding that they can serve only as confirmatory evidence. However, studies along these lines tend to reveal a definite relationship between water, sodium, potassium, and nitrogen metabolism, and possibly vitamin C storage and metabolism. It is hoped that its clarification will extend the field of usefulness of this product.

Case Reports

Partial Adrenal Cortical Insufficiency

Case 1.—C. E., female, aged thirty-five years, was referred to St. Joseph's Mercy Hospital February 26, 1936. Chief complaints were complete exhaustion, pain in the lower left chest, and total alopecia. The latter occurred at the age of thirteen, and at the age of sixteen following measles there was a complete return of her hair. There have been partial returns of hair since.

Her exhaustion was first noted eight months previous to admission to the hospital. It became progressively worse and was brought on by physical exertion. In January complete exhaustion necessitated confinement to bed. The patient was treated with thyroid extract without any result

and then developed pain in her left chest which was aggravated by sitting up or lying on the left side. Gastro-intestinal symptoms consisted chiefly of lack of appetite.

Physical examination revealed a well developed, well nourished individual. No evident weight loss. Her exhaustion was quite real. Conversation or shifting in bed was an extreme effort. There were no pigmentary changes. Almost total loss of body hair including scalp, eyebrows and lashes, axillary, and pubic. Blood pressure, 110/80. Examination of the chest revealed a deformity which appeared to be due to an elevation of the body of the sternum.

Laboratory: Urine normal. Blood count revealed red blood cells 4,000,000; white blood cells 8,700; hemoglobin 75 per cent; differential normal. Blood sugar was 128.4 mg. per 100 c.c. blood. Blood chlorides were 571 mg. Blood nonprotein nitrogen was 27.3 mg. Blood calcium was 10.8 mg. Blood phosphorus was 3.4 mg. The blood gave a negative Wassermann reaction.

The patient was placed upon 5 c.c. of adrenal cortex extract and 150 grains of sodium chloride enteric coated tablets the first day of admission to the hospital with a marked therapeutic response. She was able to spend the larger portion of the following morning going through various laboratory procedures which necessitated transferring her from bed to a cart. At the end of five days she felt competent to make the trip to her home by automobile, a distance of 100 miles. Letters from both the patient and her physician three weeks later advised that she had made splendid progress and was able to attend to her household duties as well as to get around outside. A maintenance dose of 3 c.c. on alternate days was then advised with continuation of the sodium chloride. This progress has been maintained to date.

Case 2.—B. N., female, aged thirty-two years, was referred for examination October 24, 1935. Chief complaints were fatigability and sense of exhaustion. Fatigability had been present since high school days. She tired especially toward the end of the day but this had been definitely more acute and pronounced since childbirth. The first pregnancy resulted in a child who was approximately three years old at the time of examination. The second pregnancy was full term and resulted in a child who lived only a few hours. Post mortem revealed almost total lack of thyroid and adrenal tissue. In April of 1935 the patient was placed upon 2 c.c. of adrenal cortex extract (Upjohn) every other day, and on May 20, 1935, her physician notes the following: "Fatigability has been less than during any other time in recent years. This has been so reduced that it is not necessary for her to have a mid-day rest, which previously was indulged in daily. There has been a definite increase in appetite, and she is able to carry on her household and social duties normally, which formerly were a burden to her." Treatment was continued until the time of examination, October, 1935. At this time the third pregnancy was of two months' standing but terminated two weeks later in spontaneous abortion. Her symptoms became progressively worse and she was not able to get along without becoming extremely drowsy even though she took short periods of sleep throughout the day. There was a marked aggravation of fatigability.

Physical examination revealed a normally well nourished individual. No apparent weight loss. No pigmentary changes except normal freckling. Blood pressure readings varied from 100 to 110 systolic and 75 to 70 diastolic.

Laboratory: Urine normal. Blood count revealed red blood cells 4,080,000; white blood cells 10,200; hemoglobin, 82 per cent; differential normal. Blood

sugar was 118 mg. per 100 c.c. blood. Blood cholesterol was 150 mg. Blood nonprotein nitrogen was 26 mg. Kahn was negative. Basal metabolic rates were minus 11 and minus 14 per cent.

Adrenal cortex extract was advised, but there was an interval of several months immediately after the abortion during which it was not given. A report from her physician dated June 12, 1936, reveals the following: "During the time of withdrawal of medication the patient's symptoms of exhaustion and capricious appetite persisted, and her blood pressure was 90/70. Immediately upon resumption of cortical extract the fatigue lessened, appetite improved, and a gain of 3.0 pounds occurred. The gain in weight would probably have been greater had the patient indulged to a point of satiety but for esthetic reasons she has curbed her appetite. At this writing she is in her third month of pregnancy. The regular administration of 2 c.c. every other day keeps the patient in what would be called normal health and 'pep.' Should the extract be delayed twenty-four hours there is an obvious change in personality and physical well being."

Discussion.—One must be less dogmatic in the therapeutic and diagnostic discussion of partial adrenal insufficiency. In general, the outstanding symptomatology in both instances was a marked fatigability unrelieved by any previous form of medicament, although both displayed a relatively lowered blood pressure. Organic disease including tuberculosis was ruled out in so far as possible. Neither patient was of a neurotic type. There were no significant laboratory findings including blood chemistry. The response to treatment was apparently immediate and specific, permitting the two patients to be classified clinically as partial adrenal insufficiency.

In addition to the two cases above described this medicament was employed in four cases of prolonged post-influenzal prostration. In so far as could be observed it had no beneficial effect.

Summary

Three cases of total and two of partial adrenal insufficiency are reported, one total being confirmed by autopsy. A statistical etiological report is given. Employment of a commercial cortical extract apparently has altered the immediate prognosis. The recognition of milder forms of cortical hormone deficiency should greatly increase the field of usefulness of this type of extract.

We are greatly indebted to the following physicians for the reference, observation and care of the patients here reported: Drs. Orville Hastings, Joseph Egle, E. E. Mueller, and H. F. Brown of Detroit, and S. P. Huyck of Sunfield.

References

1. Kutz: *Proc. Soc. Exp. Biol. Med.*, 29:91, 1931.
2. Piffner, Swingle, and Vars: *Jour. Biol. Chem.*, 104: 701, 1934.
3. Susman, W.: *Endocrinology*, 20:383, 1936.

THE INTRA-OCULAR FOREIGN BODY PROBLEM

GEORGE C. KREUTZ, M.D.†

DETROIT, MICHIGAN

Much time, energy, and money are expended by industry and the medical profession in the treatment of major eye injuries, for, though methods of prevention are utilized to a marked degree in all modern plants, yet a surprisingly large number of intra-ocular foreign body cases come to the attention of the industrial ophthalmologist over a period of years. The subject is fraught with interest aside from its purely surgical aspects for if there ever was an infinitesimal injury that can result in a major economic tragedy to the afflicted one, it is this particular accident. One's whole life's economic ambitions can be seriously altered in the twinkling of an eye by an object so small as to almost defy detection by the naked eye. For obviously, in this day of unemployment, of efficiency, of high physical standards and rigid entrance examinations, the one-eyed worker finds steady employment a difficult task.

The treatment of intra-ocular foreign bodies might well be dated from Meyer's attempt to use the magnet in 1842 even though it was unsuccessful. For without the magnet, the end-results of surgery would be appalling if our present success with non-magnetic bodies is a criterion. Von Graefe, in 1845, removed an intra-ocular foreign body without the magnet but the eye was lost. In 1859, Dixon of London used the magnet successfully for the first time. In 1875, McKeown of Belfast removed a foreign body from the vitreous chamber by the posterior route and saved the globe. A striking advance in this field was Hirschberg's use of the electric magnet in 1879. He strongly favored the use of posterior route extraction technique and when Haab of Zurich, in 1892, developed the giant magnet and advocated the anterior route technique, the groundwork for the present day controversy between the anterior and posterior route proponents was well laid.

Other historical high lights are Roentgen's introduction of the x-ray in 1895; Van Duyne's application thereof in intra-ocular foreign body localization in 1896; Sweet's localizing technique in 1897; and his geometric method in 1910. With these major advances, the ophthalmologist has likewise taken full advantage of the many advances in asepsis, in surgical technique,

in local anesthesia, in shock therapy, and others.

In evaluating end-results in intra-ocular foreign body surgery, more than one viewpoint must be considered. It is well and good that a foreign body be successfully removed. But in our present highly organized competitive industrial system, the patient is interested in more than that a globe be saved; than that a good aphakic eye be obtained. He is primarily interested in the functional result obtained, and a function sufficiently acute to enable him to secure steady employment easily. Although there is no uniformity of opinion as to what constitutes industrial visual acuity, more and more industrial concerns are requiring visual acuity of 6-12 or better in each eye, with glass correction, if indicated, as necessary to pass entrance examinations for factory work. It is with this one major criterion in mind that a summary and evaluation of several series of intra-ocular foreign body cases, including our own experience, is presented below.

HAAB'S SERIES

(Quoted by Würdemann)⁸

Total Number of Cases.....	165
Foreign Body Removed.....	141
Useful Eye (Aphakia included).....	71
Enucleations and lingering cyclitis.....	48
Globe saved but useless.....	19

Note: It is difficult to evaluate this series by the criterion above stated, because "aphakic eyes" are not excluded from the "useful eye" classification.

HIRSCHBERG'S SERIES

(Quoted by Würdemann)⁸

Total Number of Cases with Foreign Body in the Vitreous Chamber or Retina.....	64
Useful visual acuity retained.....	36
Enucleated eyes.....	22
Useless eyes.....	6
Extraction Unsuccessful.....	4

Note: It is again difficult to evaluate this series because "useful visual acuity" again probably includes aphakic eyes which are not considered industrially useful at this time.

†Dr. Kreutz is a graduate of the University of Wisconsin, A.B. degree, 1921; Washington University Medical School, 1924, M.D. He is Surgeon-in-Charge of Otolaryngology at the Henry Ford Hospital.

INTRA-OCULAR FOREIGN BODY PROBLEM—KREUTZ

SWEET'S SERIES

(Quoted by Würdemann)⁸

Total Number of Cases.....	395
Visual Acuity of 6/12 or better.....	44
Visual Acuity of 6/15 to 6/60.....	28
Light Perception and Projection.....	106
Globe Saved	17
Globe Lost	133
No Operation	67

Note: Forty-four (11 per cent) of this group would be eligible for modern industrial employment.

BARKAN AND BARKAN SERIES (1927)²

Total Number of Cases.....	49
Anterior Route Removal.....	24
Good visual acuity.....	21—88%
Enucleation	2
Posterior Route Removal.....	25
Good visual acuity.....	15—60%
Detachments	7
Enucleations	4

SPRATT'S SERIES (1930)⁵

Total Number of Cases.....	50
Anterior Chamber Cases.....	11
Good visual acuity.....	10
Vitreous Chamber Cases.....	39
Anterior Route Removal.....	12
Good visual acuity.....	5—42%
Posterior Route Removal.....	27
Good visual acuity.....	9—33%

ALLPORT'S SERIES (1928)¹

Total Number of Cases.....	202
Magnet Operation Successful.....	184
Enucleations	72
Posterior Route Removal.....	155
Industrial v/a	47—30%
Anterior Route Removal.....	47
Industrial v/a	21—44%

STIEREN'S SERIES (1932)⁶

Total Number of Cases.....	over 700
All removed by the posterior route	
Visual Acuity 20/20.....	5%
Visual Acuity 20/30 to 20/100.....	22%
Visual Acuity 20/120 to 20/200.....	26%
Visual Acuity 20/240 to Light Percep-	
tion	32%
Enucleated at once.....	15%

HENRY FORD HOSPITAL SERIES NO. 1

(1918-1919)

Total Number of Cases.....	95
Anterior Route Removal.....	65
Industrial v/a	18
(13 anterior chamber)	
(5 posterior chamber)	
Poor v/a	4
Light Perception and Projection.....	4
Aphakia	24
Eviscerations	15

Note: Eighteen (28 per cent) obtained economically useful eyes. Twenty-four (37 per cent) obtained potentially useful but not economically useful eyes.

Posterior Route Removals.....	30
Industrially v/a	8
Poor v/a (6/30).....	2
Good aphakic eyes.....	5
Detached Retinae	10
Eviscerations	5

Note: Eight (27 per cent) obtained economically useful eyes. Five (17 per cent) obtained potentially useful but not economically useful eyes.

HENRY FORD HOSPITAL SERIES NO. 2

(1929-1934)

Total Number of Cases.....	33
Anterior Route Removal.....	21
Industrial v/a	7
(5 Anterior chamber cases)	
(2 Posterior chamber cases)	
Good Aphakic Eyes.....	5
Light Perception and Projection.....	4
Eviscerations	5

Note: Seven (34 per cent) have economically useful eyes. Five (24 per cent) potentially useful but not economically useful eyes.

Posterior Route Removal.....	11
Industrial v/a	8
Poor v/a (6/30).....	1
Retinal Detachment	1
Eviscerated	1

Note: Eight (73 per cent) have economically useful eyes.

Whether the anterior or the posterior is the route of choice is a question which finds partisans on each side. Stieren, whose experience numbers hundreds of cases, strongly favors the posterior route. Allport¹ had as his maxim, "When the foreign body is anterior to the lens, use the anterior route, and when posterior to the lens, use the posterior route," and adds, "I have no question in my mind that these are the rules that should be obeyed." Verhoeff⁷ prefers the anterior route because of the danger of retinal detachment when the posterior route is used. Cross⁶ is "becoming more and more favorable to the anterior route as the one of selection."

Analyzing our own experiences in one hundred twenty-eight cases well studied and followed since 1918, it is our feeling that Allport's dictum is the logical one to follow. Particularly do we have this attitude since the work of Gonin on the treatment of detached retinae has become more widely used and its favorable results more frequently reported. The improvement in our second series (since 1929), we attribute to a somewhat radical change in our extraction technic. Formerly it was our custom to incise the sclera with the von Graefe knife as near the foreign body as possible, when necessary inserting a small thin bladed magnet tip into the vitreous chamber. We now trephine the sclera as near the foreign body as possible, remove the scleral button, and extract the body through the opening, introducing the magnet tip into the vitreous chamber when necessary. To prevent retinal detachment, Gonin's principle of sealing the retina and the choroid to the sclera is then applied. In our early cases, the actual cautery was used. More recently we

have used the electro-coagulating tips. We have employed this method in eleven cases and only one has resulted in a detachment. Several cases have been followed for more than four years since the method was first used by us on a patient in 1930. Stieren has followed a similar cauterizing technic for many years, using phenol in place of the actual cautery. The use of the trephine in lieu of the scleral incision was suggested to us by Dr. Don Campbell³ of Detroit who has used this method for many years with good results.

When one realizes that each intra-ocular foreign body case costs industry several thousands of dollars in surgical, hospital, and compensation fees, and further realizes that it costs a worker an inestimable amount through the loss of an eye plus the loss of employability which may extend through a lifetime of intermittent employment, it seems logical to present some working program which might guide the industrial surgeon and the industrialist in handling this important problem. We would suggest that

1. Visual acuity tests be made when an employee is hired or rehired.
2. Employees with poor visual acuity be allocated to non-dangerous jobs.
3. The use of goggles and other protective devices be further required.
4. Skillful first aid men be employed to differentiate major from minor eye injuries immediately after they are received.
5. X-rays and other diagnostic aids be used freely so that intra-ocular foreign body cases be diagnosed early.

6. Attempts at removal be made by skilled industrial ophthalmologists promptly.
7. Hospitalization be utilized freely and with it the beneficial results of shock and heat therapy.
8. Skillful prolonged after-care, even months after the foreign body has been removed, be required.
9. Employees be given protective work when returned to the job. The strain, exposure, et cetera, be avoided.
10. Refraction and corrective glasses be prescribed when needed.
11. Industrial surgeons, industrialists, and state and federal departments of industrial rehabilitation coöperate more closely in re-educating and placing men at work whose industrial visual acuity is not adequate to insure ease in securing employment.

My gratitude is expressed to Dr. E. L. Whitney, Surgeon-in-Charge of Ophthalmology at the Henry Ford Hospital, for the privilege of studying these cases, for his assistance and suggestions in handling foreign body cases, and for his criticism of the data compiled.

Bibliography

1. Allport, Frank: *Amer. Jour. Ophthalmol.*, 8:472-483, 1928.
2. Barkan and Barkan: *Amer. Jour. Ophthalmol.*, 10:919-921, 1927.
3. Campbell, Don M.: Personal communication.
4. Cross, George H.: Personal communication.
5. Spratt, Charles N.: *Amer. Jour. Ophthalmol.*, 13:1079, 1930.
6. Stieren, Edward: *Amer. Jour. Ophthalmol.*, p. 1121, (December) 1932.
7. Verhoeff, Frederick: *Amer. Jour. Ophthalmol.*, pp. 685-689, (August) 1932.
8. Würdemann: *Injuries of the Eye*—2nd edition.

Healing of the Newer Bumper Fractures of the Tibia

Walter G. Stern and Louis E. Papurt, Cleveland (*Journal A. M. A.*, Dec. 28, 1935), describe the newer type of bumper fracture as characterized by a severe comminution and splintering of the mid-third of both bones of the leg with many larger and smaller fragments, with long, linear fracture lines running up and down the tibia and, in the center of the comminution, a diamond or pyramid shaped fragment out of the cortex, usually on the anterior surface and often lying free from the rest of the fragments. The injury to the soft parts is usually severe and the fracture is often compound. Other types of injuries will occasionally produce the same characteristic features, such as injuries in mines from coal cars, falling rock and the like. The mechanism of this fracture-producing violence is rather similar to the direct violence of the bumper of an automobile. In their treatment primary reduction and fixation is carried out by the elected method for about eight weeks. After eight weeks the cast, if applied, is removed and a plaster mold of the leg

is made and measure taken for a walking brace reaching to the thigh, with lock joints at the knee. The plaster cast with walking iron or walking heel is reapplied. By this time usually sufficient fibrosis has taken place within the fracture area so that the leg is no longer flail and there is no danger of slipping of fragments. If this is not the case, the cast is reapplied and the patient is compelled to use his crutches for from four to six weeks longer. From the mold a model of the leg is made and a leather steel envelop brace with ring locks at the knee is constructed. This is form fitting and allows full weight bearing without any motion between fragments or any danger of angulation. The ordinary caliper brace is inefficient and does not completely immobilize the fragments. By this weight bearing and active function the circulation of the extremity is improved, muscle tone is reestablished and bone production is stimulated. There is a gradual deposit of lime in the callus with increasing fixation of the fragments until solid union finally takes place. These fractures are extremely slow in healing. The average healing time in a series of more than 100 cases was 6.2 months.

President's Page

MEDICAL SOCIETIES

"Societies are the forum upon which observations are compared and tested, the school wherein is learned the changes and progress of diseases and the remedial agents valuable in their treatment, where intellect is matched against intellect and where the neophyte learns to express himself and take confidence in this demonstration before his fellows. They are the training school for public teachers and he who takes an active part in their growth and usefulness receives in return a facility of expression that enables him to speak with such confidence that will command attention."

SO declared Dr. William Brodie in his presidential address before the Wayne County Medical Society in 1886. Medical societies can and do fulfill all these functions. In some of the larger centers of population in the state, however, we appear to have too many medical meetings. Were one to attend all professional groups which he would be expected and entitled to attend, there would not be evenings enough in the week.

In view of the fact that the county medical society is the basic unit of medical organization, weekly or monthly meetings of the society, as the case may be, should be given every consideration. The hospital staff meeting, specialist groups, and other similar aggregations are important and deal more with clinical medicine in smaller groups. Should not more of this type of meeting be brought to the county society as all are within the county society? If too much time is devoted to these, the county society must suffer from lack of attendance and therefore interest. In some instances, such as hospital staff meetings, what is gained there, so far as a scientific program, may largely be duplicated in the county medical society.

In view of the urgent need for solidarity in the ranks of medicine, this can be accomplished only through constant attendance at the county medical society, which, in reality, includes the other groups to a great extent. What is said here applies particularly to the larger centers of population. The rural county has different problems to cope with.



President of the Michigan
State Medical Society

THE JOURNAL

OF THE

Michigan State Medical Society

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Business Manager

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AUGUST, 1936

*"Every man owes some of his time to the up-
 building of the profession to which he belongs."*

—THEODORE ROOSEVELT.

EDITORIAL

MICHIGAN, A HEALTHFUL STATE

CLIMATE is a matter that most of us take for granted. Every year this state has among its distinguished visitors one who is very well known in the literary world, namely, William Lyon Phelps, professor of English at Yale University. Professor Phelps halted at Detroit late in June on his way to his summer home. A statement from a year-round resident of Michigan on the matter of climate might be open to discount on the grounds of self-interest. However, when an outsider will come almost a third of the distance across the continent year after year for an agreeable atmosphere and scenery, the case is different. Dr. Phelps is reported to have said during his recent bivouac in Detroit, that Michigan had the finest climate to be found anywhere in the United States.

That the state is one of the most healthful in the union is due doubtless in large part to its climate, though the watchful eye of the medical profession in sleuthing out possible dens of infection, as well as efforts of Michigan's Commissioner of Health and his co-workers, are, we think entitled to some credit. The state department of health has either eliminated or warned against the dan-

gers of the Old Swimming Hole. They have inaugurated a rigid inspection of the roadside water supply since 1925. Safety consists in heeding the warnings of the commission.

A long time ago, one or two million years ago, more or less, it doesn't matter, Michigan was visited by huge glaciers from the north. These glaciers had a mighty effect in modifying the land surface of the state. As a result, Michigan is the location of numerous fresh water lakes which, now that the ice age has long since disappeared, form a happy rendezvous for the sportsmen and fishermen.

In our northern regions, hay fever sufferers can live normal, comfortable lives during that part of the year when elsewhere their existence is rendered anything but comfortable. The good roads that course throughout the state, north, south, east and west, have tended to annihilate distance and have brought those natural resorts within easy access not only to the residents of Michigan, but to the pleasure seekers from all over the union.

DOES THE DOCTOR SHIFT HIS ECONOMIC BURDEN?

IN spite of the solvent condition of the treasury of Michigan, there is still a disposition on the part of those in control to feel that the state obligation is discharged if the hospitals are remunerated for the medical and surgical care of indigents. The doctor should give his services freely without any thought of remuneration. Many laymen think, if they have given any thought to the matter at all, that physicians on the staffs of hospitals are paid for their services. It is inconceivable to the average lay mind that anyone should work for nothing. But it does not go any farther; those not directly concerned are not interested.

The more business-like who have had occasion to employ physicians or surgeons and who have paid promptly for such services, feel that they bear the burden of physicians' so-called charity, on the assumption that no business could long stand such a drain on its resources. Business adds a certain percentage to the normal selling price of its commodity to make up for non-collectable debts.

The doctor, however, is not dealing in material commodities. He is rendering

services. The merchant who sells goods that are not paid for is that much poorer. If he disposes of an abnormally large quantity of goods and is not paid for them, he goes broke, perhaps beyond recovery. If, on the other hand, the physician renders services free of charge, he is not injured as a physician so long as he can procure the basic necessities of life, food, clothing, and shelter. He is, however, hampered in many ways, which all physicians realize to their great inconvenience. We have maintained that in the vast majority of instances, the physician does not soak the pay patient to make up for his losses in the care of the indigent. If medical fees are too high, the patient will either go without medical care or will defer it until he has jeopardized his chances of recovery. For the vast majority of illnesses the medical fees should not be considered burdensome considering the cost of other services rendered by non-professionally trained persons.

Even during the years preceding the depression, very few doctors could be considered affluent compared with those engaged in many other callings. Allowing eight hours for sleep, the doctor has had to learn how to live on sixteen hours a day. The only commodity he has to sell is his time. If a goodly portion is taken up in unremunerative work, his plight may be easily seen. He cannot, however, overcharge remunerative patients to make up his losses. He must bear it with as much fortitude as he can muster. The economic problems confronting the medical and dental professions today are proof that members of the two professions are carrying the charity load. If they could shift the burden of care of the indigent upon those who can and do pay them, doctors would have no economic problems.

Farmer (to new hired hand from the city)—Now, when you are attending to these mules, I warn you not to approach them from the rear without speaking to them first.

New Hired Hand—Why is that, is it a question of etiquette on the farm?

Farmer—No, it ain't a matter of etiquette a-taal. But one of them mules is liable most any time to kick you in the head, and I don't want any lame mules 'round here to wait on.

Nobody is quite so pompous as a man who has the idea that he must maintain a reputation as an authority or play the rôle of being intelligent.

GOVERNMENT PHILOSOPHY IN A SICK WORLD*

By *Walter Lippmann*

Plato's ideal ruler was the philosopher. Would the ideal statesman of the modern society be a physician?

* * *

I should like to discuss an aspect of the philosophy of government in a disordered world. Philosophy is perhaps too pretentious a name; what I have in mind is an attitude towards government which, when it becomes articulate and explicit may be dignified as a philosophy.

In the realm of government, whether a man is simply an interested citizen or an active politician, or a responsible official, or a student and thinker, the subject-matter is complex, it transcends his personal observation and experience, it comprises an extraordinarily large number of intricately related variable elements. In order to think about politics at all, in order to make public affairs comprehensible to the human mind, men have to create for themselves some kind of mental image, some sort of model, some hypothetical pattern which is simpler and more familiar than the reality which William James used to call the buzzing, blooming confusion of the actual world. It is beyond the power of ordinary minds—I am tempted to say that it is beyond the power of any mind—to deal continually and effectively with the data of experience in all their raw, heterogeneous fullness.

Survival of Fittest

At different times in the course of history, men have used different images to represent to themselves the social order in which they live. One of the oldest and most persistent of these images is derived from the patriarchal family; the relation between the ruler and his subjects is conceived as similar to that between the patriarch and his children. Then there is the image derived from war: the ruler's relation to his subjects is conceived as the relation between the chieftain and his warriors. This, incidentally, is a social image which has recently had a spectacular recurrence in the fascist states of Europe. Again and again, from the time of the Græco-Roman thinkers, men have at certain times conceived society as a body politic in which each class, each rank, was an essential member. Usually the current image has been an imitative reflection of the accepted or dominant science of the age. Thus, in the Eighteenth Century, the profound impression made upon men by the Newtonian conception of the physical world was carried over into politics, and men conceived the society as a system of forces. Our own constitutional system was devised by men who had the daring to conceive a federal republic in which the states would remain as distinct as the separate planets and as unified as the solar system. In the Nineteenth Century, the Darwinian imagery took possession of many political thinkers: economic competition and the imperialistic competition of national states were regarded as illustrations of the struggle for existence of a surplus population in an insufficient environment and of the survival of those most fitted to survive.

Now in our own day a different image has taken possession of many influential minds. Let us call it the image of the statesman as engineer. It is not hard to account for its popularity and persuasiveness. The most obvious triumphs of modern

*Delivered before the New York Academy of Medicine on December 19, 1935, and reprinted from the *Academy Bulletin* by special permission.

man, those which are most easily appreciated, are his great buildings, his great ships, his great machines, his great tunnels, dams, canals. Mankind has been profoundly impressed with the contrast between the efficiency of these engineering works as compared with the inefficiency of statesmen, of financiers, and of business men. The engineer, it seems, is able to achieve what he sets out to achieve. He can plan and he can carry out his plan. He knows what he is doing and he does it.

Social Engineers

So the idea took hold that society might be run by engineers, might be deliberately constructed according to a plan and then operated as efficiently as a great machine. When I was a young man, Mr. H. G. Wells was the prophet of this vision, and there were few in my generation who were not spellbound by the idea that if only we could get rid of politicians and of competitive business men and turn society over to the engineers, a clean, orderly, efficient and gracious civilization would be brought into being. This vision, if you will remember, played an immense part in the early enthusiasm for Mr. Hoover. Around 1920 he was hailed by many of us as the ideal ruler of men because he was not a politician but an engineer, though today, such is the changeableness of men, he is criticized precisely because he is not a politician. In the post-war era the image of the engineer seems to have taken hold not only of the best minds of the Republican Party in America, but of the best minds of the Communist Party in Russia. One of the chief reasons why Soviet Russia has exerted such attraction upon so many men is that the planned economy of Russia seemed to be an example, the first in history, of the application of engineering principles to human society. There were several years, I should say roughly from the crash of 1929 to the end of 1933, from the breakdown of prosperity to the beginning of recovery, when the ideal of an engineered and planned economy had almost completely captured the imagination of the Western World. Everyone who raised his voice talked about planning something, the Chamber of Commerce, the heads of big corporations as well as the New Dealers and the Progressives. No doubt they had different ideas of how to plan and what to plan for, but the underlying image dominated most minds. The notion finally reached its grand climax, and its *reductio ad absurdum*, in the vogue of technocracy.

The point I wish to make is that conception of government as a problem in engineering, is a false and misleading conception, that the image of the engineer is not a true image of a statesman, and that society cannot be planned and engineered as if it were a building, a machine or a ship. The reason why the engineering image is a bad image in politics, is a bad working model for political thought, is a bad pattern to have in mind when dealing with political issues, is a very simple one. The engineer deals with inanimate materials. The statesman deals with the behavior of persons.

A mode of thought appropriate to the organization of inanimate elements cannot be applied successfully to the organization of animate ones. It is as radical a misconception as would be the attempt to become an architect by studying music or a horticulturist by studying astronomy. The engineer who plans a building can calculate the weight which his steel will sustain; but he does not have to consider whether his girders and his bricks will renew their vitality from day to day and reproduce their kind from generation to generation. Nor does he have to consider whether they will be willing to hang together in the structure into which he has

put them, whether the girders, for example, will grow weary of supporting the bricks and begin to have purposes which he did not assign to them when he made his plan.

Biologic Analogy

Surely it is almost self-evident that if, as an instrument of political thinking, we must have a working image derived from some more familiar discipline, then it is to the biologic science that we must look for an analogy. Since the statesman deals with living things, he had better take his analogies and his inspiration from those who deal with living things, from farmers, and animal trainers, and teachers, and physicians rather than from astronomers, and engineers and architects. For analogies, images, working hypotheses, patterns, whatever you choose to call them, which come from man's dealings with the world of living organisms will at least have the virtue of keeping vividly in his mind a sense of what he is handling. Governing is an art. It requires, as all arts do, a sense of touch, an intuitive feeling for the material, a kind of sixth sense of how it will behave.

The masters of any profession know something more than it is possible to communicate; they are so sympathetically at one with their subject that instinctively they possess the nature of it. Before they have reasoned consciously, they have smelt, have felt, have perceived what it is and what to do. It used to be said that you did not have to be in the ring with Jack Dempsey for fifteen rounds in order to learn that he was a champion. Likewise, the master of a subject, whether he is a carpenter or the rider of a horse, a diagnostician, or a surgeon, will quickly disclose in the inevitable emergencies of any human activity whether he possesses that intimate feeling, that flair, that uncalculated aptitude which distinguishes the first-rater from the second-rater.

Now among public affairs as elsewhere, since everything cannot be reasoned out *a priori* in each emergency, it is of the utmost importance that the political tradition of a country should predispose men toward a true and reliable sense of how living men in a living society behave. That is why the dominant imagery is so important.

The image of a planned and engineered society has the effect, I believe, of destroying the intuitive feeling for what society actually is and of the sense of touch in dealing with human affairs. The grosser consequences of it are evident enough; in the supreme impertinence with which communist and fascist states treat human beings as if they were animate materials to be fabricated by the dictators; in the ruthlessness with which they cut human nature to the shape they desire and nail together in designs of their own the living spirits of men. This notion that society can be engineered, planned, fabricated as if men were inanimate materials becomes in its extremist manifestations a monstrous blasphemy against life itself. It can also take milder forms which merely produce temporary confusion and inconvenience as in the fantastic attempts, now happily concluded, to write in three or four months some five hundred codes for the detailed conduct of all business throughout continental America.

The man who approaches public life with a feeling for living organisms will not fall into the illusion of thinking he can plan or fabricate or engineer a human society. He will have the more modest aim of defending it against the invasion of its enemies and of assisting it to maintain its own balance.

Remembering that a society is an association of living persons, and not an arrangement of inanimate materials, he will never imagine that he can impose upon those living persons and their descendants

his private preferences. He will recognize that the function of government is not to decide how men shall live, what kind of men they shall be, what they shall spend their energies upon. Government cannot direct the life of a society. Government cannot shape the destiny of the human race.

Drastic Medicine

There are some who think that government should use all its powers of coercion to make the social order correspond with their own ideal of the nobler and more satisfying social order. But this is as if a doctor dealt with a patient on the assumption that he must use drastic medicine if he finds that his patient is not as strong as Hercules, as beautiful as Apollo, and as wise as Zeus. He would be an absurd doctor. The sound physician, I take it, is not attempting to make a superman out of his patient. He takes measures to protect him against the invasion of hostile bodies. He cultivates habits which improve his resistance. He intervenes with medicines and surgery when he thinks he can assist the patient in recovering his own equilibrium. Always, if I understand the faith of the physician, he regards himself not as a creator, designer, and dictator of the nature of man, but as the servant and the ally of nature. There are times to be sure, when his patient is prostrate and the doctor must be the master of his whole régime. But even in these times, the good doctor will be continually seeking for ways, not to make a new man of his patient, but to encourage those recuperative powers which may at last enable the patient to walk again on his own feet.

There is a vast difference between those who, as engineers dealing with inanimate materials, can dictate to nature and those who, as physicians dealing with living organisms, must respect nature and assist her. My thesis is that statesmen had better think of themselves as physicians who assist society than as engineers who plan and fabricate it. They will understand these problems better if they realize that society has not been invented or constructed by any man or any set of men but is in fact the result of the infinitely complex adaptations by innumerable persons through countless generations. Its destiny is beyond the power of the human mind to imagine it. Its reality is complex beyond the mind's power to grasp it. Its energies are beyond the power of any men to direct it. Society can be defended. Its adjustments can be facilitated. Its various purposes can be clarified, enlightened, and accommodated. Its aches and pains can in some measure be relieved. But society is not and never will be a machine that can be designed, can be assembled, can be operated by those who happen to sit in the seats of authority.

To know this, to realize the ultimate limitations of government, and to abide by them, is to have that necessary humility which, though for the moment it is at a discount in many parts of the globe is, nevertheless, the beginning of wisdom. Without it men will use political power for ends that government cannot realize, and in the vanity of their delusions fall into all manner of cruelty, disorder, and waste. They will have forgotten to respect the nature of living things, and in their ambition to be as gods among men they will affront the living God. They will not have learned that those who would be more than human end by being less than human.

The time of the year is here when people who wouldn't think of eating with a fly on their table will go on a picnic and eat a meal in the presence of a thousand flies, to say nothing of the ants, gnats, chiggers, bugs, and varied other flying insects and crawling critters.

A GRASS DIET

A native of Yugoslavia, who is alleged to have celebrated his one hundred and fifth birthday, claims that his advanced age is due to a life-long habit of eating grass. He gathers it and cooks it and sometimes eats it raw. The *Manchester Guardian* poet has seized upon the incident and has delivered the following:

Would you like to know how to keep youthful,
Defying the years as they pass?
Take a tip from a chap who is truthful,
And try eating grass.

Some people say "Shun beer and baccy,
And husband your health and your brass."
But that is a creed for a lackey—
The hero eats grass.

It is good for the ancients who dodder,
It is good for the lad and the lass;
I tell you, as health-giving fodder,
There's nothing like grass.

You can gobble it green as a salad,
Or boiled to a spinach-like mass;
There is room for a boost or a ballad
In favor of grass.

Get down to it, laddie, and chew it,
You copy the ox and the ass;
If Nebuchadnezzar could do it,
Well, what's wrong with grass?

Away with that boosted Hay Diet,
For hay's in a different class;
Insist on the best and run riot
Turned out to pure grass!

THE CADUCEUS OR THE STAFF OF ÆSCULAPIUS

Wisdom, Healing, Cunning, Health, Swiftmess, Religion are things which most of us strive for.

Many of us look upon "The Caduceus" with a rather tolerant air, because after all "we may be children" and perhaps we regard this new toy of ours as a form of plaything, an advertisement or at the most a disk on the front of our car as a traffic signal.

"The Caduceus" signifies all that I quoted in the first paragraph. The double winged twisted serpent staff is as old as history. In Genesis, the serpent was cunning and subtle. Who needs cunning, if not the physician? In Exodus, the brazen serpent was a healing agent. Egyptians worshipped serpents. Symbolic here of faith, one *must* have faith in one's physician. Again a serpent had a thalic significance; it is the emblem of life. Who brings life into the World?

The wings are symbolic of Horus, the "God of the Sun," who dispersed light, health and life.

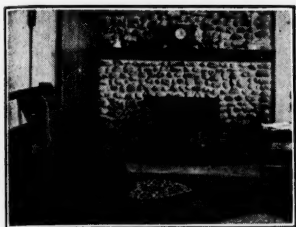
The origin of the staff is indefinite, but the sick and aged lean upon the staff who is the physician.

It is also the staff of the Great Mother, the "Great Giver of Life," Uas Staff.

The Staff of Æsculapius has only one serpent and perhaps is a better symbol than "The Caduceus" or the Staff of Hermes, who was noted for speed, swiftmess or as a messenger, but many authorities claim that this was another instance of the so-called Greek Culture using Egyptian Art and claiming it as their own.

Therefore, one can see that our emblem signifies the glorious traditions in history as old as the earth and a future without bounds.

W. G. G. in *Mercy Hospital News*, Bay City.



The Editor's Easy Chair

BEWARE THE GREEKS BEARING GIFTS

In the matter of group hospital insurance the only thing in its favor is the fact that hospital expense can be liquidated at a minimum cost to the insured patient, leaving him able to meet the cost of medical care (that is, the doctor's part in it) sooner and with greater ease than if he were to pay his hospital independently. Ten or twelve dollars a year in group hospital insurance is not burdensome to any employed person no matter how low his income. The hospital is assured of hospital costs on the prepayment plan. The patient is free to concentrate on the doctor's fee. Fine!

* * *

Once upon a time, so the story runs, a camel called on an Arab but could get only his head into the Arab's tent. The camel persisted, however, until he was able to insinuate his entire body into the tent and the Arab was forced to seek an exit through the back door. May not hospital insurance be the entering wedge of health insurance? If hospitalization can be made so financially attractive, it is only a short step to include the laboratory specialties, x-ray and clinical laboratories, and then, why not include obstetrics? Then surgery and medicine? The plan wherever put into operation is concerned only with employed persons. The unemployed or indigent sick will still be left for the medical profession. Any altruistic plan should be applied first to the indigent rather than to employed persons.

* * *

Under the group hospital insurance periodic prepayment plan for the purchase of hospital care, the patient may have his choice of physician and may be hospitalized only on the advice and request of his physician. If, however, his physician happens not to be on the staff of the particular hospital or hospitals concerned in the group hospitalization plan, the patient's loyalty to his private physician will be strained to

the breaking point. The patient will doubtless select the hospital which he has already prepaid, which circumstance will involve severing relations with his family physician and accepting a physician on the staff of the hospital participating in group insurance. This is an immediate objection to it.

* * *

Hospital insurance, of course, is a matter of arrangement between the hospital either singly or as groups with definite groups of employed persons. The hospital and the group are factors primarily interested in the arrangement. The doctor is not a negotiating factor. The matter of hospital insurance is far beyond the experimental stage. The principle has been adopted in various centers all over the continent. The clearest statement that we have seen is the study made by the Canadian Medical Association, embodied in a brochure of fifty pages. Since it has been a matter, as stated, between the hospitals and the insured groups, the medical profession has not been as well informed beforehand as it should be regarding the merits and demerits of the plan. As we have intimated, a great deal can be said on both sides; that is, for and against hospital insurance. The short range view (speaking from the medical viewpoint) appears promising; the distant view is fraught with possible pitfalls.

* * *

To digress for a moment. The past decade or two have witnessed the development of what has been termed the totalitarian state as exemplified in Italy, Germany, Soviet Russia and Turkey, and to a less degree elsewhere. The beginnings of these movements appear to be in the interests of body politic. Fascism, Nazism and Sovietism began in a small way in the activities of small groups convinced that they alone knew the solution of their respective political, economic and social problems. Their course has resulted in eliminating almost entirely individual freedom. The charge that has been made against health insurance, or sickness insurance as the case may be, is that it tends to cramp the freedom of the practicing physician. There is no question of this. Medicine has declined both as a science and as an art where it has been subjected to regimentation in the totalitarian state. As we have already mentioned, group hospital insurance may seem so palatable to the patient, to the hospital, and to the doctor who

is fortunate enough to be connected with a hospital under the group plan, that other things may be eventually thrown in for good measure, probably at a moderate additional fee. We mean all laboratory work, much of which is now performed independently by private specialists in these branches, then gradually such departments of medical care as surgery and all its branches as well as internal medicine and its various specialties. This would, of course, be complete health insurance. It would mean organization and regimentation of the entire medical profession; no, not the entire profession, but just so many members as would be required to take care of the employed worker under a business arrangement. As we have said repeatedly, the organization of medicine on the basis of efficiency would eliminate a large number of doctors who as private practitioners are in a position to live as independent citizens. We noted some time ago that, according to a survey made in Canada, organization and regimentation of the profession would enable 50 per cent of the number now licensed to practice to care for the entire number of afflicted persons.

The long range view then does not appear so promising.

* * *

The scheme appears to be feasible in mining and other segregated districts. To apply it in the industrial centers appears to us an insidious attempt to make palatable the idea of general health insurance. We advise that the profession become thoroughly familiar with the operation of group hospital insurance on the periodic prepayment plan in other places before committing themselves.

"Let us rather bear the ills we have
Than fly to others that we know not of."

The Bone Marrow

R. H. Jaffé, Chicago (*Journal A. M. A.*, July 11, 1936), asserts that the improvement in the technic of biopsies of the bone marrow has added a valuable method to the diagnostic laboratory procedures to which the clinician can resort in the cases in which the examination of the peripheral blood fails to give definite information. The importance of the examination of the bone marrow in vivo becomes evident if one considers the fact that the circulating blood does not always reflect the condition of the bone marrow. Great differences exist sometimes between the cellular content of the blood and that of the bone marrow which may be the sources of diagnostic errors. Since the biopsy of the bone marrow is expected to become widely used in clinical medicine, he presents a brief discussion of the normal bone marrow and of the changes that are observed in some of the important disturbances of blood formation.

Critical Analysis of Heart Disease Mortality

O. F. Hedley, Philadelphia (*Journal A. M. A.*, Nov. 2, 1935), is of the opinion that the present method of reporting and tabulating heart disease mortality statistics does not reflect a true picture of heart disease mortality. Only 80 per cent of deaths occurring in hospitals in a large city and tabulated for the purpose of vital statistics as due to heart disease were found on examination of the hospital records to be due to that cause, while only 62 per cent of deaths due to heart disease were so officially recorded. It is not possible to obtain an accurate conception of the total number of deaths from heart disease or of any of the various etiologic types. Within certain limits, the more accurately heart disease is diagnosed the less reliable are the official mortality statistics. This is due to the difficulties in interpreting diagnoses made along etiologic lines in terms of the International List of Causes of Death. It is quite likely that with further advances in clinical medicine, these points of view will become more divergent and vital statistics even more unreliable. It is proposed that heart diseases, when reported along etiologic lines, shall be tabulated as subtitles under the respective etiologic categories. Consideration should be given toward eventually revising the International List of Causes of Death so that heart disease mortality may be officially recorded on an etiologic basis. Physicians are urged to use etiologic diagnoses in reporting heart disease mortality. Registrars of vital statistics should be most loath in questioning death certificates containing approved clinical terms. It should be recognized by practicing physicians, coroners and statistical officials that the employment of superficially accurate diagnosis based on insufficient evidence results only in the vitiation of mortality statistics in general. Many diagnoses of heart disease are made without sufficient evidence. While the use of an etiologic terminology is not suggested as a panacea for intentional misstatements, it is believed that fewer mistakes are made when heart disease is diagnosed in terms of its causative factors.

Gonorrheal Vaginitis: Results of Treatment with Different Preparations and Amounts of Estrogenic Substance

In treating gonorrheal vaginitis, Robert M. Lewis, New Haven, Conn., and Eleanor L. Adler, New York (*Journal A.M.A.*, June 13, 1936), found that estrogenic substance in ethylene glycol given hypodermically was relatively effective when used in large doses: 2,400 international units daily. Eight hundred international units daily proved disappointing. The use of vaginal estrogenic suppositories (originally 600 international units and later 1,000) proved very effective. Clinical improvement, cessation or great diminution of discharge is nearly always noted after from fourteen to eighteen days of treatment. The administration of estrogenic substance changes the reaction of the vaginal secretions from neutral or alkaline to acid. This, the authors believe, is the major factor in eliminating the gonococcal infection. The acidity of the vaginal secretions is easily measured and provides a sure guide by which one can determine whether or not dosage is adequate. Of thirty-three consecutive cases of gonorrheal vaginitis in children treated with estrogenic suppositories, thirty yielded negative smears in an average of 20.7 days. Two required twelve weeks of treatment. Five cases are listed as recurrences. No ill effects were encountered. The method is safe and harmless, and the most effective method known for the treatment of gonorrheal vaginitis in children.

Postgraduate Extension Courses for 1936

given by the Department of Postgraduate Medicine, University of Michigan, and the Michigan State Medical Society, beginning the first week in October and continuing eight weeks in the following centers:

Grand Rapids
Battle Creek--Kalamazoo, jointly
Lansing--Jackson, jointly
Flint
Bay City
Traverse City--Cadillac--Manistee, jointly

A composite of the course will be given in October
at Marquette, Houghton, or Escanaba.

MORNING

Clinical Pathological Conference. Clinical Course and Pathology of Circulatory Disease. Two Illustrative Cases.

- (a) The Basis for Allergy in Man.
(b) The Diagnostic Criteria of Allergic Disease and a Consideration of the Practical Specific Management.

The Common Psychoneuroses in Adults and Children. The Evaluation of History and Signs. The Manifestations in the Organs. Treatment.

- (a) Appendicitis. A Consideration of the Problems Involved in the Increasing Death Rate from this Disease.
(b) Differential Diagnosis of Diseases of the Breast.

The place of the x-ray in the Diagnosis of Gastro-Intestinal Disease.

Malposition of the Uterus. The Importance of Clinical Manifestations. Diagnosis and Treatment.

Fungous and Allied Infections of Skin. Tinea Infections. Trichophytids, Tinea versicolor. Erythrasma. Blastomycosis. Coccidioid Granuloma, Etc.

Recognition and Management of Acute and Chronic Disease of the Ear.

AFTERNOON

The Differential Diagnosis and Management of Coronary Disease. Progressive Coronary Occlusion. Angina Pectoris.

- (a) Allergic Diseases. Sensitization dermatitis. Contact dermatitis. Urticaria.
(b) The Common Skin Manifestations of Allergy.
The Skin in Immunity and Allergy.

Acute Lobar Pneumonia. A Discussion of Specific Methods of Treatment. A Consideration of Sera and Vaccines. Recognition of Complications.

Care of the Injured Person, Including the Recognition and Emergency Care of Fractures.

Ulcerative Lesions of Gastro-Intestinal Tract. Esophagus. Peptic Ulcer. Ulcerative Colitis. Newer Methods of Treatment.

Management of Post-partum Infection. Diagnosis of Mild Cases. Course of the Infection, Prognosis, Prevention and Treatment.

Urinary Tract Obstructions: Urethral, Prostatic, Bladder Lesions, Ureteral Lesions. Symptoms, Diagnosis and Management.

The Diagnosis and Practical Management of the more Common Diseases and Injuries of the Eye. The Conjunctiva. Squint. Foreign Bodies. Glaucoma.

DEPARTMENT OF SOCIETY ACTIVITY

C. T. EKLUND, M.D., Secretary

COUNCIL CHAIRMAN'S COMMUNICATION

THE Governor's Executive Order of June 4, making the filter system official, plus the action of the State Administrative Board of July 21 reinstating Schedules A, B, C and D, will be tests of the filter system! Coöperation of the highest type by physicians, probate judges, and hospitals is required to make successful the program recommended to state officials on October 30, 1935.

The economic investigation must be airtight; the medical examination of the patient, stripped, must be scrupulous. It is the duty of physicians, by contact and activity with probate judges, to see that the commitments are kept at a minimum, consistent with necessary medical care to the people; if the load increases unduly, the chiseler may procure service at the expense of the worthy, and the deficit may become so large as to discredit the work of the medical profession.

Our responsibility as physicians is to take care of the sick and to help solve the medical problems of our community. If filter boards refuse tax-supported medical care to people because of their economic ability to pay, these patients must be referred to their family physicians, without fail, so that they may procure the required service and be accorded the chance to pay on a post-payment basis, if necessary. Physicians must be ready to place their services at the disposal of all.

HENRY COOK, M.D.

A REAL HONOR ROLL

THE growing popularity of the Post-Graduate movement can not be better attested than by a consideration of the number of physicians and surgeons who have availed themselves of the opportunities afforded by this movement on the part of the University and the Michigan State Medical Society. Herewith appear the names and addresses of those doctors who have attended the courses given during the first half of 1936.

Ophthalmology and Otolaryngology.—Drs. Gordon H. Bahlman, Flint; Clarence Baker, Detroit; Charles S. Ballard, Detroit; Emerson M. Blake, Columbus, Ohio; Earl Bloomer, Dearborn; D. H. Boyce, Escanaba; George H. Boyce, Iron Mountain; Frederick J. Cady, Saginaw; Leland F. Carter, Detroit; Wayne A. Cochrane, Jackson; George V. Conover, Flint; William S. Conway, Petoskey; A. J. Cortopassi, Saginaw; Harold Criswell, Bay City; Gerald F. Denyes, Toledo, Ohio; Ralph G. Ferris, Birmingham; Laslo Galdonyi, Detroit; Roll O. Grigsby, Ashland, Wis.; William J. Harrington, Appleton, Wis.; Don V. Hargrave, Eaton Rapids; Benjamin G. Holtom, Battle Creek; Don M. Howell, Alma; William S. Jones, Menominee; Thomas F. Keating, Detroit; Mana Kessler, Bay City; W. J. Kibler, Tonawanda, N. Y.; R. Lee Laird, Highland Park; Victor R. Lapp, Hamilton, Ont.; Edmund O. Leahy, Jackson; B. E. Leatherman, Toledo, Ohio; Lee A. Lewis, Manistee; Maurice C. Loree, Lansing; John A. Lukens, Toledo, Ohio; Clifford B. Mandeville, Muskegon; Fred W. McAfee, Detroit; Arthur McArthur, Flint; Lester McCullough, Detroit; John J. McDermott, Benton Harbor; William E. McGarvey, Jackson; A. R. McKinney, Saginaw; Wm. E. Miller, South Bend, Ind.; George F. Moore, Mt. Clemens; Ray E. Newton, Jackson; Leonard Nippe, Toledo, Ohio; Charles T. Pankhurst, Ionia; Harold E. Ray, Xenia, Ohio; Louis Reik, Eloise; Harvey B. Searcy, Tuscaloosa, Ala.; DeWitt L. Sherwood, Detroit; Alon W. Shewman, New Castle, Pa.; John C. Smith, Jackson; Emory Stein, Eloise; Paul J. Stueber, Lima, Ohio; William G. Symon, Garrett, Indiana; Robert A. Weber, Mitchell, S. Dakota; Herbert O. Westervelt, Benton Harbor; Herbert T. White, Flint; Edward P. Wilbur, Kalamazoo; George E. Winter, Jackson; William P. Woodworth, Detroit; Russell H. Strange, Mt. Pleasant; Clayton T. Stubbs, Detroit; J. N. Sutherland, Detroit.

Proctology.—Drs. N. S. Banker, Cleveland Ohio; O. H. Baumes, Cincinnati, Ohio; Fred Beekel, Cleveland, O.; Nils O. Byland, Battle Creek; Haviland Carr, Covington, Ky.; Peter H. Darpin, Detroit; George W. DeMuth, Defiance, Ohio; S. E. DeMuth, Defiance, Ohio; J. W. Edwards, Ferndale; Howard D. Giles, Columbus, Ohio; Stephen Graczyk, Buffalo, N. Y.; Dean W. Hart, St. Johns; J. F. Heffernan, Carleton; Louis Hromadko, Detroit; J. W. Hutchens, Portsmouth, Ohio; H. C. Kling, Niles; D. A. Levine, Iron River; C. G. Mackey, Culver, Ind.; James W. MacMeekin, Saginaw; Vincent S. Mancuso, Detroit; Mark M. Marks, New York City; Pedro O. Martinez, Detroit; Arthur A. McNabb, Lawrence; Paul Medema, Muskegon; J. J. Michalak, Humboldt, Kans.; C. L. A. Oden, Muskegon; John H. Oyer, Angola, Ind.; C. H. Playfair, Hamilton,

JOUR. M.S.M.S.

SOCIETY ACTIVITY

Ont.; George N. Rinehart, Toledo, Ohio; Morris Schaner, Toledo, Ohio; R. W. Shook, Kalamazoo; A. B. Simonson, Elsie; R. N. Slate, Detroit; R. A. Springer, Centreville; Milton Strawbridge, Toledo, Ohio; L. F. Thalner, Jackson; Frank A. Votey, Grand Rapids; R. S. Waterson, Niles; M. Wertenberger, Jackson.

Genito-Urinary Diseases.—Drs. Eugene S. Brown-ing, Grand Rapids; C. A. Cetlinski, Detroit; Peter H. Darpin, Detroit; George W. DeMuth, Defiance, Ohio; John W. Edwards, Detroit; Howard Giles, Columbus, Ohio; Leonard A. Glenn, Chatham, Ont.; Dean W. Hart, St. Johns; Herbert C. Kling, Niles; David A. Levine, Iron River; Vincent S. Mancuso, Detroit; Pedro O. Martinez, Detroit; Howard H. McNeill, Pontiac; Joseph J. Michalak, Humboldt, Kans.; Alton B. Simonson, Elsie; Russell A. Springer, Centreville; Harry Van Heldorf, Detroit.

Gynecology, Obstetrics and Gynecological Pathology.—Drs. Walter Belser, Ann Arbor; Peter L. Boyle, Youngstown, Ohio; Henry E. Thompson, Detroit; Perry P. Burnstine, Detroit; C. H. Carruthers, Florence; C. P. Clark, Flint; C. G. Constable, Detroit; Peter H. Darpin, Detroit; J. W. Edwards, (Detroit) Ferndale; Edwin O. Foss, Muskegon; Norman K. H'Amada, Detroit; Joseph E. Isaacs, Detroit; Marie Keilin, Muskegon; Saba Kessler, Bay City; Earl F. Lutz, Detroit; Elta Mason, Flint; Usher H. Meyer, Erie, Pa.; H. A. Miller, Lansing; O. W. Mitton, East Tawas; M. J. Murphy, Grand Rapids; James B. Nelson, Youngstown, Ohio; A. Noordewier, Grand Rapids; Clarence E. Toshach, Saginaw.

General Medicine.—Drs. Nelson Abbott, Marshall; C. A. Alexander, Kalamazoo; Joseph A. Bakst, Detroit; C. H. Carruthers, Florence, Ont.; Peter H. Darpin, Detroit; Fred J. Drolett, Lansing; David H. Fauman, Detroit; John Gates, Ann Arbor; Neil Gates, Ann Arbor; J. A. Graham, Detroit; C. L. Hodge, Reading; Bert H. Honeywell, Ann Arbor; J. C. Isaacs, Detroit; T. G. Kane, Muskegon; E. M. Kilpatrick, Columbus, Ohio; J. G. Kirker, Detroit; Wm. Klein, Detroit; David Kliger, Detroit; M. E. Kohn, Detroit; Earl F. Lutz, Detroit; Pedro Martinez, Detroit; Elta Mason, Flint; J. P. McConkie, Birmingham; Howard H. McNeill, Pontiac; E. D. Merritt, Detroit; Harry C. Metzger, Detroit; Russell Palmer, St. James; B. R. Parker, Detroit; A. W. Petersohn, Battle Creek; Emmett M. Pettis, Muskegon; A. C. Roche, Calumet; Morris Schaner, Toledo, Ohio; Sadie Thumin, Detroit; Mildred C. Williams, Detroit; J. J. Woods, Ypsilanti.

THEY ARE DOING YOUR JOB!

ON July 8 the thermometer in Detroit registered 105°. The pavements fanned diabolic blasts at motorists and pedestrians, but seventeen stalwarts braved these infernal rigors and at a sacrifice of comfort, valuable time and expense, came to Detroit from various distances, great and small, to

attend a meeting of the State Society Public Relations Committee to discuss the important question of distribution of medical care to the borderline group.

Dr. Roy H. Holmes of Muskegon traveled the greatest distance, 380 miles; Dr. A. V. Wenger of Grand Rapids, 298 miles; Dr. F. T. Andrews of Kalamazoo, 280 miles; Dr. L. Fernald Foster and Dr. Paul R. Urmston of Bay City, 210 miles; Dr. L. C. Harvie of Saginaw, 180 miles; Dr. Henry Cook and Dr. F. B. Miner of Flint, 116 miles; Dr. C. T. Ekelund of Pontiac, 50 miles; and Dr. T. K. Gruber of Eloise, 25 miles. Detroit physicians who gave up the evening to attend the session at the W.C.M.S. Building were Dr. F. B. Burke, Dr. J. H. Dempster, Dr. L. O. Geib, Dr. H. A. Luce, Dr. R. H. Pino, Dr. Frank H. Purcell, and Dr. J. M. Robb.

To repeat, these physicians sacrificed their time and convenience to bring to the Michigan State Medical Society helpful advice on a problem whose solution is the responsibility of you, and you, and every practicing physician. You owe these men (and the other workers on the twenty-seven State Society committees who are spending much of their time and effort on the important affairs of Medicine) your gratitude and thanks. Actually, they are doing *your* job.

COUNCIL AND COMMITTEE MEETINGS

1. **June 23, 1936**—Subcommittee of Special Contact Committee to Governmental Agencies—Probate Court, Flint—9:00 A. M.
2. **July 8, 1936**—Executive Committee of The Council, plus the Public Relations Committee and the Medical Economics Committee—Wayne County Medical Society Building, Detroit—6:00 P. M.
3. **July 9, 1936**—Liaison Committee with State Bar of Michigan—Board Room, Olds Tower, Lansing—2:00 P. M.
4. **July 12, 1936**—Maternal Health Committee—Olds Hotel, Lansing—10:00 A. M.
5. **July 12, 1936**—House of Delegates' Medico-Legal Study Committee—Pantlind Hotel, Grand Rapids—2:30 P. M.
6. **July 15, 1936**—Contact Committee with Michigan Crippled Children Committee—Olds Hotel, Lansing—1:30 P. M.
7. **July 20, 1936**—Special Contact Committee to Governmental Agencies; meeting with Finance Committee of State Administrative Board, State Auditor General's Office, Lansing—10:00 A. M.
8. **July 22, 1936**—Liaison Committee with Michigan Hospital Association, Olds Hotel, Lansing—6:30 P. M.
9. **July 29, 1936**—Executive Committee of the Council, and the Legislative Committee—Statler Hotel, Detroit—3:00 P. M.

MINUTES OF MEETING OF MATERNAL HEALTH COMMITTEE

March 7, 1936

The meeting was called to order in Ann Arbor by Dr. Norman F. Miller, for the purpose of considering advisability of attempting a state survey on obstetric practice. Those present were Drs. Norman F. Miller, Ann Arbor; Ward F. Seeley, Detroit; H. W. Wiley, Lansing; H. A. Furlong, Pontiac; also Dr. Nathan Sinai was present by request. Absent: Drs. Campbell and Toshach.

Dr. Sinai explained the present study being made by the United States Department of Public Health and considerable discussion took place concerning how an extensive fact finding program could be arranged for the State of Michigan.

It was decided to draw up a plan or program which would be submitted to The Council of the Michigan State Medical Society for approval and if approved an effort would then be made to obtain funds from the Federal Government to carry on the study.

* * *

MINUTES OF MEETING OF MATERNAL HEALTH COMMITTEE

April 19, 1936

The meeting was called to order by Dr. Alexander M. Campbell, Chairman, at Ann Arbor. Those present were Dr. Alexander Campbell, Grand Rapids; Dr. Norman Miller, Ann Arbor; Dr. Ward F. Seeley, Detroit; Dr. Harold Furlong, Pontiac; Dr. H. M. Gafafer, United States Public Health Service, and Dr. Nathan Sinai. Absent: Dr. H. W. Wiley, Lansing.

Concerning the proposed study of the obstetrical practice in the State of Michigan, letters were read from the members of the Executive Committee of The Council in which this study was given approval.

A discussion of the preparation of a movie for presentation before lay audiences resulted in a request to be asked of Dr. Lillian R. Smith for financial aid in the preparation of this movie film.

A letter which the Committee proposes to send to the President of each county medical Society was read and discussed and the Chairman of the Committee requested to send out this letter at an early date with follow-up letters at future dates.

The Lillian Smith program which was considered at the Lansing meeting on April 1 was discussed and the Committee approved of the plan which she outlined and suggested that one member of her local Committee should be Chairman of the Committee on Maternal Health of the County Medical Society.

Dr. Fred Adair's letter asking coöperation with Dr. Slemons and Dr. Lillian R. Smith in our Maternal Health Program was read and discussed. Blanks for the proposed Obstetrical study were submitted to the Committee by its different members and these blanks were referred to Dr. Gafafer to revise, review and correct, and they will be given consideration at the next meeting, which will be held at Hotel Olds, Lansing, Michigan, on May 3, 1936, at 10:00 a. m.

* * *

MINUTES OF MEETING OF MATERNAL HEALTH COMMITTEE

May 3, 1936

The meeting was called to order at 10:00 a. m. by Dr. Alexander M. Campbell, Chairman, in the Olds Hotel, Lansing. Those present were Drs. Alexander M. Campbell, Grand Rapids; H. A. Furlong, Pontiac; Norman F. Miller, Ann Arbor; and H. W. Wiley, Lansing. Also present were Dr.

W. J. V. Deacon, Department of Health; Dr. W. M. Gafafer, United States Public Health Service, Washington, D. C.; and Secretary C. T. Ekelund, Pontiac. Absent: Dr. Ward F. Seeley, Detroit.

The purpose of the meeting was to consider in detail the questionnaire which is to be sent out to the physicians of Michigan relative to the survey of obstetrical practice at the present time. Data is to be obtained from certificates of births covering six months during this year, staggered so as to avoid seasonal variations. It is proposed to estimate the amount and kind of prenatal care, the type of obstetric practice at delivery as conditioned by complications *accidental* to pregnancy; the preparation of the patient and of the physician for delivery; the nature of the delivery itself; the difficulties encountered and the complications *incidental* to pregnancy and labor.

Previous studies have been made on maternal and infant mortality and morbidity, but this is the first attempt made to evaluate the quality of obstetrical service on any considerable scale. The degree to which the quality of such service affects maternal and infant mortality is difficult to evaluate and the present study should shed much light on this question. The committee hopes that it will be afforded 100 per cent coöperation by physicians to whom the questionnaires will be sent.

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MINUTES OF MEETING OF MATERNAL HEALTH COMMITTEE

May 17, 1936

The meeting was called to order by the Chairman, Dr. Alexander M. Campbell, at 10:00 a. m., Hotel Olds, Lansing. Those present were Drs. Campbell, Grand Rapids; H. A. Furlong, Pontiac; Norman F. Miller, Ann Arbor; W. F. Seeley, Detroit; and H. W. Wiley, Lansing. Also present were Dr. W. J. V. Deacon, State Department of Health, Lansing; Dr. W. M. Gafafer, United States Public Health Service, Washington, D. C.

The meeting was opened with a discussion of the situation in which the doctor resides in one county and the birth occurs in another. Dr. Deacon explained that the law requires that a birth be reported to the registrar in the district in which it occurs.

Dr. Gafafer began a discussion of the questionnaire which was revised at the meeting of May 3. Additional changes were agreed upon.

The Committee decided that a sample copy of the questionnaire, in which the changes suggested today have been incorporated, shall be sent to each member, who will in turn send his comments to Dr. Gafafer, United States Public Health Service, Washington, D. C.

The instructions will be placed on the front of the folder, which will be accompanied by a separate letter of explanation.

It was Dr. Campbell's suggestion that the folders be sent out from the State Society to the physicians, to be followed up by the Local Committees, since it will be approximately three months before the committees are appointed.

Dr. Miller read a letter which he had composed, upon the suggestion of Dr. Campbell, with the view of persuading Dr. Dempster of THE JOURNAL to give publicity to the work of this Committee. The letter, which is to be printed in the next issue of THE JOURNAL, was heartily approved by the Committee.

Dr. Wiley reported that after conversations with Dr. Slemons and Dr. Smith, he was assured of five hundred dollars for the Committee immediately for the cost of the film, and an allowance in the budget of two thousand dollars for traveling expenses. There will be an allowance of hotel bills, meals, and five cents per mile each way. It is necessary that

SOCIETY ACTIVITY

the vouchers go through the Auditor General's Department, even though this is federal money.

Dr. Campbell suggested that the members be thinking about proper speakers all over the State; also the preparation of a speech to be given with the showing of the film in order that all speeches may be virtually identical.

In respect to evaluating the questionnaires, Dr. Deacon expressed the opinion that practicable procedure is to have the Committee go over twenty-five or thirty of them. After the ideas have been set and framed up, it would be best to have one person do the evaluating.

It was agreed by the Committee that the duplicating of the birth certificates might begin immediately. Dr. Gafafer and Dr. Deacon discussed the dextragraphing of these certificates with Mr. Gold of the Remington Rand Company.

Mr. Gold stated that the dextragraphing camera can be sent to Lansing with an operator doing the work in the Department of Health offices. The rolls will be sent to the laboratory of the company in New York to be developed, and the prints will be returned to any place designated by the Committee.

The certificates for January, February and March would total from twenty to twenty-four thousand. Mr. Gold quoted the price of dextragraphing at \$26.75 per thousand complete, including transportation, using the lightest weight of paper. The rolls will be cut up and kept in order by the Remington Rand Company. (Adoptions are included with birth certificates and will be taken out of the group before they are duplicated, thus leaving holes in the numerical order.) The entire process can be completed, according to Mr. Gold, within ten days.

The meeting was adjourned at twelve o'clock noon. No day certain was set for the next meeting, but it was suggested by several of the members that another meeting should be called approximately a month from this date.

* * *

MINUTES OF MEETING OF MATERNAL HEALTH COMMITTEE

July 12, 1936

The meeting was called to order by Chairman Campbell in the Olds Hotel, Lansing. Those present were Drs. Alexander M. Campbell, Grand Rapids; Norman F. Miller, Ann Arbor; Ward F. Seeley, Detroit; H. A. Furlong, Pontiac. Also present Dr. Palmer of the United States Department of Health. Dr. Furlong was appointed as temporary secretary. Absent: Dr. H. W. Wiley, Lansing.

Dr. Miller read a prepared statement and discussed at length the necessity for increasing the clinical material available for teaching obstetrics at the University of Michigan, and recommended vigorous action by this Committee to remedy the situation by presentation of the problem to the House of Delegates. The members of the Committee warmly agreed with Dr. Miller and were of the opinion that immediate action should be taken.

Dr. Seeley reported upon the progress in preparing a movie on "Prenatal Care."

Dr. Miller said that federal funds were available for a short lecture course in Postgraduate Obstetrics for county medical societies, and that Dr. Alexander M. Campbell was available for the series of lectures with the cooperation of the Department of Postgraduate Medicine of the University of Michigan and Michigan State Department of Health.

Dr. Palmer, representing the United States Department of Health, took up several matters in connection with the survey on obstetrical practice. The schedules for physicians are printed. The birth certificates have been dextragraphed. It was decided to start mailing the forms to physicians September 1

with a letter from the Chairman of this Committee and a sample schedule. Letters were to be sent to Chairman of each County Maternal Health Committee.

The question of publicity concerning the survey was discussed. Dr. Furlong was asked to contact Dr. C. T. Ekelund, Secretary of the Michigan State Medical Society. It was decided not to release publicity to *The Journal of the American Medical Association* or lay press at present.

Meeting adjourned at noon.

HAROLD A. FURLONG, M.D.,
Temporary Secretary.

MINUTES OF MEETING OF THE RADIO COMMITTEE

May 7, 1936

1. *Roll Call.*—The meeting was called to order by Dr. Fred H. Cole, Chairman, at 12:45 p. m., in the Wayne County Medical Society Building, Detroit, Michigan. Present were Drs. Fred H. Cole, Detroit; John Sundwall, Ann Arbor; K. H. Lowe, Battle Creek. There were also present Drs. James D. Bruce, Ann Arbor; D. J. Levy, Detroit; Miss Mary Connolly of the Detroit Health Department; Mr. Waldo M. Abbot, Director of Radio Broadcasting, University of Michigan; Mr. Wm. J. Burns, Executive Secretary, MSMS; Mr. J. A. Bechtel, Acting Executive Secretary, WCMS; and Mr. Clare Gates, Field Secretary of the Joint Committee.

2. *Interests of Radio Committee.*—Dr. Cole opened the meeting by giving a brief résumé of the extent to which the radio is being used by local medical societies, the Wayne County Medical Society, and the Detroit Health Department. He then briefly stated the interests of his Committee, as follows:

(a) A means whereby persons responsible for existing regularly scheduled health and medical programs might exchange future program schedules.

(b) Discussion as to whether or not the State Medical Society should arrange for programs other than the present scheduled programs.

(c) A means of assisting committees in arranging for broadcasting facilities without the necessity for each committee making its own contacts with radio stations.

(d) Discussion of types of presentation of radio programs.

(e) A means of publicizing future broadcasts.

3. *Program of Radio Committee.*—After considerable discussion, it was agreed that the Committee should:

(1) Take an inventory of all broadcasting stations in the state, listing all programs on public health and medical subjects according to the organization sponsoring it.

(2) Start a library consisting of radio talks on various subjects that could be made available to those requesting such material.

(3) Provide a means for directors of radio programs on medical and health subjects to exchange their schedules in order to present a more orderly and continuous series of programs.

(4) Develop a program that would bring about a better distribution throughout the state of this form of lay education.

(5) Evolve a plan for announcing future broadcasts in local newspapers.

SOCIETY ACTIVITY

4. *Survey of Health Programs.*—Attention was called to the fact that the Joint Committee on Public Health Education was initiated by the State Medical Society for the purpose of developing an educational program that would serve as a coordinating unit of all existing health educational activities.

In consideration of this fact the committee agreed that the Joint Committee be requested through its field director to conduct a survey of programs now being given over Michigan radio stations and to learn as far as possible what, if any, areas of the state are not being reached.

5. *Adjournment.*—The Chairman thanked all for their attendance and advice and adjourned the meeting at two o'clock.

MINUTES OF THE MEETING OF JOINT COMMITTEE ON PUBLIC HEALTH EDUCATION

May 22, 1936

1. In the absence of President Ruthven, Dr. Bruce acted as Chairman, pro tem, and called the meeting to order in the Michigan Union, Ann Arbor, at 1:30 p. m.

Present: *Michigan State Medical Society*—Drs. Grover C. Penberthy, James H. Dempster, B. R. Corbus, A. C. Furstenberg, and Executive Secretary Wm. J. Burns.

University of Michigan—Drs. James D. Bruce, John Sundwall, W. D. Henderson, C. A. Fisher, and Mr. Clare Gates.

Michigan State Dental Society—Drs. U. G. Rickert, W. W. Gibson, Kenneth Easlick, and A. C. Thompson.

Wayne University, College of Medicine and Surgery—Dr. R. B. Allen, Dean.

Michigan State Conference of Social Work—Mr. John MacLellan.

Michigan State Nurses Association—Mrs. Barbara H. Bartlett.

Michigan Division, American Red Cross—Miss Josephine Davis.

Michigan Association of Sanitarians—Dr. Lloyd R. Gates.

Michigan Association of School Physicians—Dr. V. E. Volk, Sec'y.

Michigan Congress of Parents and Teachers—Mrs. W. T. Sanders, President; and Mrs. Fred Raymond.

Michigan Education Association—Mr. David A. Van Buskirk, President.

Michigan Home Economics Association—Miss Ruth Freegard.

Michigan Physical Education Association—Dr. Mabel E. Rugen, President.

Michigan State Federation of Women's Clubs—Mrs. W. E. Chapman, President.

Probate Judges Association of Michigan—Judge Frank L. McAvinchey.

Subcommittee on Scientific Program—Dr. L. O. Geib.

Subcommittee on Health Education in Schools—Drs. D. W. Gudakunst, K. L. Heaton, and Misses Alice Evans and Ottilia Frisch, and Mr. V. S. Blanchard.

Subcommittee on Adult Health Education—Dr. Roy H. Holmes and Misses Edna V. Smith and Mary Connolly.

Guests—Dr. Henry Otto, Kellogg Foundation; Dr. K. E. Miller and Mr. H. E. Miller of the U. S. Public Health Service.

2. Dr. Henderson read the minutes of the meeting, which were approved as read.

3. Dr. B. R. Corbus made a brief summary of the history of the Joint Committee for the benefit of the augmented membership of the Committee.

4. Reports of Committees—(a) Mr. Gates, Field Secretary, read a report of his activities in relation to coordinating the work of the various units of the Joint Committee.

(b) Dr. Mabel Rugen gave a report for the standing committee on Health Education in Schools. The Chairman asked for comments on Dr. Rugen's report. Dr. Heaton, representing the State Department of Public Instruction, commented very favorably on the progress of this committee and pointed out that its activities covered a field in which there had been much confusion, and expressed himself as believing that this Committee is engaged in a much needed activity.

(c) Miss Mary Connolly read the report for the Committee on Adult Education.

5. Following the report on Adult Education, Mr. V. S. Blanchard reviewed briefly the problem of safety education for the purpose of bringing it before the Joint Committee for their consideration for the purpose of including this form of education in their programs.

6. Mrs. Sanders read a communication from the Congress of Parents and Teachers in which she informed the Joint Committee that her organization would like both direction and assistance in the programs for local groups. She further pointed out that the employment of a field representative for this activity would lend a personal touch and would probably bring results that could be obtained in no other way.

7. Mrs. Chapman stated that she had been requested by the National offices of the Women's Federated Clubs to appoint someone to stimulate education in Cancer Prevention and wondered if the Joint Committee, as a part of its coordinating activities, could act as a central agency, with the end in view of preventing overlapping in this field of education.

The Chairman pointed out that within the past week the Cancer Committee of the State Medical Society had requested the Joint Committee to assist in putting into effect their program to avoid overlapping of activities.

8. The Chairman asked for discussion concerning the time and place of the next meeting, stating that it had been customary in the past to hold meetings of the Joint Committee in connection with the annual meeting of the Council of the State Medical Society.

Dr. Penberthy suggested that because of the augmented membership of the Joint Committee and because of its activities, it seemed to him no longer necessary that the Joint Committee meet with the Council of the Medical Society. He suggested that it might be wise, for the above reasons, to hold meetings of the Joint Committee separately from any other organization.

It was moved and supported that the time and place of the next meeting be left to the designation of the Executive Committee.

9. Meeting adjourned.

W. D. HENDERSON,
Secretary.

JOUR. M.S.M.S.

MINUTES OF MEETING OF LEGISLATIVE COMMITTEE

June 24, 1936

1. *Roll Call.*—The meeting of the Legislative Committee was called to order by Dr. H. H. Cummings, Chairman, at 7:00 p. m. in the Wayne County Medical Society Building. Present were Drs. Cummings, Ann Arbor; F. B. Burke, Detroit; C. F. Snapp, Grand Rapids. Also present were President Grover C. Penberthy, Detroit; Dr. James H. Dempster, Detroit; Dr. T. K. Gruber, Eloise; and Executive Secretary Wm. J. Burns. Absent: Drs. L. G. Christian, Lansing; Henry Cook, Flint (excused); L. J. Gariepy, Detroit; and H. E. Perry, Newberry.

2. *Minutes.*—The minutes of the meeting of May 23 were approved as printed.

3. *Committee Reports.*—The activities and recommendations of the sub-committees were discussed and accepted, on motion of Drs. Burke and Snapp.

4. *Legislative Bulletins.*—The Legislative Committee approved the use of periodic legislative bulletins to advise the appropriate committees of county medical societies regarding the situation in legislative activity. The Committee authorized the mailing of Legislative Bulletin No. 1 after the Executive Committee of The Council approves same. The Committee also felt that it should use the Bureau of Information of the MSMS and the speakers' Bureaus of the county medical societies to bring correct information on medical legislation to the public.

5. *Legislative Exhibit.*—Dr. Gariepy, Chairman of the Exhibit Committee, was not present. The Executive Secretary was instructed to write Dr. Gariepy for information on progress with the exhibit.

6. *Afflicted-Crippled Child Laws.*—Report was given on the status of these laws, and on the activity of the Governor's Special Commission on Welfare and Relief. Also on the Governor's Executive Order of June 4, 1936, and on the new forms being developed by the Auditor General. Dr. Ray G. Tuck's suggestion for coordination of medical services in Michigan was also presented to the Committee.

7. *Adjournment.*—The Chair thanked all for their attendance and helpful advice and adjourned the meeting at 9:20 p. m.

MINUTES OF MEETING OF EXECUTIVE COMMITTEE OF THE COUNCIL

July 1, 1936

1. *Roll Call.*—The meeting was called to order by Dr. Henry Cook, Chairman, at 7:55 p. m., Statler Hotel, Detroit. Those present were Drs. Cook of Flint; A. S. Brunk and H. R. Carstens, Detroit; C. E. Boys, Kalamazoo; T. F. Heavenrich, Port Huron; and Frank E. Reeder, Flint. Also present were President Grover C. Penberthy, Detroit, President-elect H. E. Perry, Newberry; Secretary C. T. Ekelund, Pontiac; Dr. James H. Dempster, Editor, Detroit; Drs. S. W. Insley, P. R. McQuiggan, and F. A. Purcell, Detroit; and Executive Secretary Wm. J. Burns.

2. *Minutes.*—The minutes of the meeting of May 22 were read and approved. The statement in Item 10 that "The Executive Committee author-

ized opening of the exhibits to the public on Tuesday afternoon, September 22," was discussed, as some of the section officers were said not to favor this decision. The motion of Drs. Brunk-Reeder that the exhibits be opened to the public on Tuesday afternoon, September 22, was unanimously approved.

3. (a) *Relief Medicine.*—Dr. Insley reported for the Subcommittee on Relief Medicine, reading the minutes of this Committee's meeting of June 5, as amended. A lengthy discussion on problems of relief medicine ensued, during which Dr. Insley read inquiry from the Philadelphia County Medical Society which he stated he would endeavor to answer. Dr. Cook spoke about his trip to Traverse City on June 25 to address the Michigan Association of Probate Judges. He felt that "the farther we keep government away from paying for medical care, the better for the profession." Motion of Drs. Heavenrich-Boys that further discussion of this subject be deferred until the meeting of July 8, which meeting is authorized by the Executive Committee of The Council, to be held at the Wayne County Medical Society Building and to include complimentary dinner to all guests, but no traveling expenses. Carried unanimously. Dr. Carstens felt that the medical profession needs slowly to educate the people, as we are part of society and not arbiters thereof.

(b) *Governor's Special Commission on Welfare and Relief.*—The personnel of this Commission was presented; also the membership of its Executive Committee.

4. *Afflicted-Crippled Children Laws.*—The Special Committee reported through Dr. Penberthy on its meeting with Governor Fitzgerald, June 3. Dr. Perry reported on his conference with the Governor on July 1, stating that the Governor promised to recommend to the Finance Committee of the State Administrative Board on July 20, that Schedules A and C be revived as of July 1, 1936, and that physicians be paid not to exceed \$50,000 per month (estimate of cost of medical fees) for the balance of 1936, or a total of \$300,000.

5. *Tuberculosis Division in State Health Department.*—The minutes of the June 10 Joint Meeting of the PRC-PMC with State Health Commissioner Slemons, et al, were read and report given on efforts to incorporate a tuberculosis control service in the State Health Department.

6. *Conditions in the Councilor Districts.*—(a) Dr. Heavenrich reported on the alleged unethical conduct of two physicians in the Seventh Councilor District. Full discussion. Motion of Drs. Carstens-Brunk that the Chair be authorized to appoint a committee to study the matter of the alleged unethical practices of these two physicians in the Seventh Councilor District. and that said committee report at the next meeting of the Executive Committee of The Council with recommendations of methods of procedure. Carried unanimously.

Committee: Dr. Carstens, Chairman; Drs. Brunk and Reeder.

(b) A letter from George Granger of the SERA was read and, on motion of Drs. Heavenrich-Brunk, was ordered sent to the Gratiot-Isabella-Clare County Medical Society. Carried unanimously.

(c) A letter from Dr. Robert L. Wade of Coldwater relative to difficulties with the Filter System in Branch County, was read and ordered placed on file.

SOCIETY ACTIVITY

(d) The report on "The Cookware Health Company of America," in Hartford, Van Buren County, Michigan, was read and referred to Councilor Boys.

(e) Letters from Dr. C. E. Toshach of Saginaw, Dr. M. A. Martzowka of Roscommon, and Dr. Lloyd L. Savage of Caro, relative to irregular practitioners in their respective communities, were read.

7. *Admission Policy at University Hospital.*—Dr. Penberthy reported, and the matter was thoroughly discussed. The Chair was authorized to appoint a committee to contact Dr. J. D. Bruce, Vice President of the University of Michigan. Committee: Dr. Carstens, Chairman, and Dr. Penberthy.

8. (a) *Membership Report.*—Paid membership to date is 3,126 members, compared to 2,965 last year.

The JOURNAL income for June was \$746.42; printing costs were \$792.31. Bills payable for the month were presented, and, on motion of Drs. Brunk-Boys, were approved and ordered paid. Financial report was presented, accepted and placed on file.

(b) The recommendation of Treasurer Wm. A. Hyland that the Michigan State Medical Society approve the "Amended Plan of Reorganization of the Public Gas & Coke Company" was presented, and, on motion of Drs. Boys-Brunk, the Treasurer's recommendation was approved. Carried unanimously.

(c) Progress on plans for the Annual Meeting was reported by President Penberthy, Secretary Ekelund, and the Executive Secretary. The official program will be sent to every member of the MSMS in advance of the Annual Meeting.

The offer of 4,000 copies of "Detroit Publicity" by the Detroit Convention and Tourist Bureau was presented and discussed. Motion of Drs. Boys-Reeder that this question be referred to a Special Committee to handle, with power to act. Carried unanimously.

Committee: Drs. Brunk, Penberthy, Carstens.

9. *Recognition for Service to Michigan Medicine.*—A proposed resolution was presented and discussed. It was felt that such a procedure, especially in the field of economic medicine, might lead to embarrassments. Motion of Drs. Heavenrich-Brunk that the matter be laid on the table. Carried unanimously.
10. *Resolution on Dr. Carl F. Moll's Death.*—Speaker Reeder asked the advice of the Executive Committee concerning appointment of a House of Delegates' Committee to draw up resolutions to the late Dr. Moll. General discussion. Dr. Reeder appointed Dr. Heavenrich as Chairman of this Committee.
11. *Roadside First-Aid.*—Motion of the Preventive Medicine Committee endorsing the principle of widespread instruction in first-aid work was presented; Secretary Ekelund explained the background for this action.
12. *Thanks to Dr. Cook.*—Dr. Brunk moved that a vote of thanks to Dr. Henry Cook be placed on the minutes for his journey to Traverse City on June 25 to address the Michigan Association of Probate Judges, and that Dr. Cook's mileage and hotel expenses be paid. Carried unanimously. President Penberthy suggested to Speaker Reeder that the President of the Michigan Association of Probate Judges be invited to speak before the House of Delegates of the MSMS

in September, 1936. Discussion resulted in a motion by Drs. Boys-Brunk that the Executive Committee of The Council request the Speaker of the House of Delegates to formally invite the President of the Michigan Association of Probate Judges to speak before the House of Delegates Tuesday morning, September 22, 1936, and that this be printed in the official program. Carried unanimously. Secretary Ekelund was requested to send official invitation.

Dr. Ekelund asked advice about including with the committees' annual reports the report of the Goitre Committee. General discussion. Motion of Drs. Heavenrich-Boys that the annual report of the Goitre Committee be not presented to the House of Delegates with the other committee reports, but be placed before the Pediatric Section. Carried unanimously.

13. *Bureau of Information.*—Approval was given for purchase of steel drawers for the 425 new addressograph plates of all newspapers of Michigan, on motion of Drs. Boys-Heavenrich. Carried unanimously.

14. *Adjournment.*—The Chair thanked all for their attendance and helpful advice and adjourned the meeting at 11:50 p. m.

DO YOU KNOW ABOUT THE VOLTA BUREAU?

"We consulted several specialists, and all of them confirmed our fears, but none offered any solution of our problem." Thus the mother of a small deaf child wrote to the Volta Bureau. The sentence might be quoted verbatim from many letters written by parents of deaf or hard of hearing children, or by hard of hearing adults.

The knowledge that deafness is present and that it is incurable comes with the force of a major calamity. It is so crushing in its effect that something positive in the way of help must be offered immediately, if the individual is not to spend desperate years in a bewildered effort to adjust himself. The parents of a deaf child must be told that the child can be taught to speak and can be successfully educated, and that this education may be begun at home immediately, even if the child is not more than two years old. The parents of a child whose hearing is only slightly impaired must be given advice as to his adjustment. The hard of hearing adult must be told about lip reading, about hearing aids, about social efforts in his behalf.

The Volta Bureau was established for the purpose of furnishing all this information to all who ask for it. Its services are free. Alexander Graham Bell, the son of a hard of hearing mother, the husband of a deaf wife, the lifelong friend of everyone handicapped by deafness, used the money received as a prize for inventing the telephone to found the Volta Bureau so that anyone confronting the problems of deafness might be assured of help. Advice is given as to schools and preschool training, lip reading instruction, hearing aids, social contacts, psychological difficulties. While the Volta Bureau is not equipped to do employment service, it gives information in regard to the fields of activity that are open to the deaf and the hard of hearing.

The Volta Review, a magazine for parents and teachers of the deaf and for the hard of hearing, is on the reading table of many physicians. Pamphlets dealing with all phases of deafness except medical problems are available to all who ask for them. Lists of such pamphlets and sample copies of the magazine will gladly be sent free of charge. The Volta Bureau is located at 1537 35th St., N.W., Washington, D. C.

SOCIETY ACTIVITY

HOUSE OF DELEGATES, MICHIGAN STATE MEDICAL SOCIETY, 1936

Names of alternates appear in italics.

Alpena-Alcona-Presque Isle

F. J. O'Donnell, Alpena
D. A. Cameron, Alpena

Barry

R. B. Harkness, Hastings
H. S. Wedel, Freeport

Bay-Arenac-Iosco-Gladwin

L. Fernald Foster, Bay City
C. S. Tarter, Bay City

Berrien

R. S. Snowden, Buchanan
D. Richmond, St. Joseph

Branch

R. L. Wade, Coldwater
Samuel Schultz, Coldwater

Calhoun

Harvey Hansen, Battle Creek
A. T. Hafford, Albion
Wm. M. Dugan, Battle Creek
N. H. Amos, Battle Creek

Cass

W. C. McCutcheon, Cassopolis
E. M. Cunningham, Cassopolis

Chippewa-Mackinac

J. G. Blain, Sault Ste. Marie
F. Wendell Tamblyn, Sault Ste. Marie

Clinton

Dean W. Hart, St. Johns
F. D. Richards, DeWitt

Delta

J. J. Walch, Escanaba
No alternate named

Dickinson-Iron

E. M. Libby, Iron River
W. H. Huron, Iron Mountain

Eaton

A. G. Sheets, Eaton Rapids
P. Engle, Olivet

Genesee

F. E. Reeder, Flint
George Curry, Flint
Donald R. Brasie, Flint
R. S. Halligan, Flint
D. R. Wright, Flint

Gogebic

W. E. Tew, Bessemer
W. L. Maccani, Ironwood

Grand Traverse-Leelanau-Benzie

E. F. Sladek, Traverse City
No alternate named

Gratiot-Isabella-Clare

Wm. E. Barstow, St. Louis
M. G. Becker, Edmore

Hillsdale

O. G. McFarland, North Adams
A. W. Strom, Hillsdale

Houghton-Baraga-Keweenaw

Geo. C. Stewart, Hancock
G. M. Waldie, Hancock

Huron-Sanilac

D. D. McNaughton, Argyle
J. C. Webster, Marlette

Ingham

L. G. Christian, Lansing
Harold W. Wiley, Lansing
C. F. DeVries, Lansing
O. M. Randall, Lansing
R. Wadley, Lansing
R. L. Finch, Lansing

Ionia-Montcalm

F. H. Ferguson, Carson City
Wm. L. Bird, Greenville

Jackson

Philip A. Riley, Jackson
James J. O'Meara, Jackson
Horatio A. Brown, Jackson
Corwin S. Clarke, Jackson

Kalamazoo-VanBuren-Allegan

F. T. Andrews, Kalamazoo
R. G. Cook, Kalamazoo
Chas. TenHouten, Paw Paw
F. M. Boothby, Lawrence
H. H. Stryker, Kalamazoo
W. R. Vaughan, Plainwell

Kent

B. R. Corbus, Grand Rapids
Leon Sevey, Grand Rapids
Wm. R. Torgerson, Grand Rapids
A. V. Wenger, Grand Rapids
Carl F. Snapp, Grand Rapids
J. D. Brook, Grand Rapids
R. R. Smith, Grand Rapids
D. Hagerman, Grand Rapids
G. H. Southwick, Grand Rapids
Paul Kniskern, Grand Rapids

Lapeer

D. J. O'Brien, Lapeer
H. M. Best, Lapeer

Lenawee

A. W. Chase, Adrian
G. C. Hall, Adrian

Livingston

H. G. Huntington, Howell
J. J. Hendren, Fowlerville

Luce

R. E. Spinks, Newberry
A. T. Rehn, Newberry

Macomb

A. B. Bower, Armada
J. N. Scher, Mt. Clemens

Manistee

K. M. Bryan, Manistee
L. A. Lewis, Manistee

Marquette-Alger

V. Vandeventer, Ishpeming
R. A. Burke, Palmer

Mason

Lars W. Switzer, Ludington
No alternate named

Mecosta-Osceola

Geo. W. Yeo, Big Rapids
Jacob Bruggema, Evart

Menominee

Edward Sawbridge, Stephenson
No alternate named

Midland

David Littlejohn, Midland
J. H. Sherk, Midland

Monroe

Dean Denman, Monroe
J. H. McMillin, Monroe

Muskegon

Roy H. Holmes, Muskegon
Leland E. Holly, Muskegon

Newaygo

O. D. Stryker, Fremont
W. H. Barnum, Fremont

Northern Michigan

Guy C. Conkle, Boyne City
No alternate named

SOCIETY ACTIVITY

Oakland

Otto Beck, Birmingham
Ernest Bauer, Hazel Park
A. V. Murtha, Pontiac
Robert Baker, Pontiac

Oceana

W. Lemke, Shelby
Clinton Day, Hart

O. M. C. O. R. O.

C. R. Keyport, Grayling
No alternate named

Ontonagon

E. J. Evans, Ontonagon
J. L. Bender, Mass

Ottawa

E. A. Stickley, Coopersville
W. C. Kools, Holland

Saginaw

Ralph Jiroch, Saginaw
C. E. Toshach, Saginaw
L. C. Harvie, Saginaw
O. W. Lohr, Saginaw

St. Clair

A. L. Callery, Port Huron
T. E. DeGurse, Marine City

St. Joseph

R. A. Springer, Centerville
D. C. Weir, Three Rivers

Schoolcraft

Gail Broberg, Manistique
A. R. Tucker, Manistique

Shiawassee

I. W. Greene, Owosso
W. E. Ward, Owosso

Tuscola

O. G. Johnson, Mayville
A. S. Rundell, Vassar

Washtenaw

John Sundwall, Ann Arbor
Dean W. Myers, Ann Arbor
John Wessinger, Ann Arbor
S. L. LaFever, Ann Arbor
H. B. Britton, Ypsilanti
Warren E. Forsythe, Ann Arbor

Wayne (All delegates from Detroit except otherwise indicated)

R. C. Jamieson, T. K. Gruber of Eloise, J. M. Robb, Ralph H. Pino, L. J. Hirschman, Fred H. Cole, Jos. H. Andries, H. A. Luce, W. D. Barrett, Wm. J. Cassidy, Wm. J. Stapleton, F. B. Burke, Wm. R. Clinton, Douglas Donald, A. E. Catherwood, A. P. Biddle, S. W. Insley, Harry F. Dibble, Angus McLean, Chas. R. Kennedy, John L. Chester, E. D. Spalding, C. F. Brunk, Frank A. Kelly, H. W. Plaggemeyer, H. W. Yates, Chas. E. Dutchess, David I. Sugar, A. W. Blain, P. L. Ledwidge, C. K. Hasley, A. F. Jennings, W. S. Revero.
L. J. Garipey, H. P. Cushman, B. U. Estabrook, C. E. Umphrey, M. H. Hoffmann, C. R. Davis, Wm. Honor of Wyandotte, L. T. Henderson, J. A. Hockey, B. L. Connolly, J. A. Kaspar, L. O. Geib, S. E. Gould, F. C. Kidner, S. A. Flaherty, E. R. Witwer, H. J. Kullman, C. R. Simpson, B. C. Krieg, H. W. Peirce, F. W. Hartman, R. B. Walker, Mark McQuiggan, W. N. Braley, Allan W. McDonald, Frank J. Kilroy, Wm. P. Woodworth.

Wexford

W. Joe Smith, Cadillac
J. F. Carrow, Marion

LIST OF DETROIT HOTELS

Hotel	No. of Rooms	Single		Double		Twin Bedded	
		With Bath	Without Bath	With Bath	Without Bath	With Bath	Without Bath
Abington	135	\$2.50 up		\$3.50 up			
700 Seward	Suites—\$50 up monthly						
Belcrest	135	\$2.50 up		\$4.00 up			
5440 Cass	Suites—\$50 up monthly						
Book Cadillac	1200	\$3.00 up		\$4.50 up		\$5.00 up	
Wash. Blvd.							
Briggs	200	\$2.00 up		\$3.00 up		\$4.00 up	
114 W. Adams							
Dearborn Inn	100	\$3.00 up		\$5.00 up		\$6.00 up	
Dearborn, Mich.							
Detroit Leland	800	\$2.50 up		\$3.50 up		\$4.50 up	
Cass at Bagley							
Fort Shelby	900	\$2.00 up	\$1.50 up	\$3.00 up		\$4.00 up	
Lafayette at First							
Fort Wayne	300	\$2.00 up		\$3.00 up		\$4.00 up	
408 Temple							
Lee Plaza	196	\$2.50 up		\$3.50 up		\$4.00 up	
2240 W. Gr. Blvd.	Suites—\$65 up monthly						
Lexington	100	\$2.00 up	\$1.25 up	\$3.00 up	\$2.00 up	\$3.00 up	
2970 W. Gr. Blvd.							
Madison Lenox	300	\$2.00 up	\$1.25 up	\$2.50 up	\$2.00 up		
Madison & John R.							
Norton	250	\$1.50 up	\$1.25 up	\$2.50 up	\$2.00 up		
Jefferson and Griswold							
Norton Palmer	200	\$2.50 up	\$1.50 up	\$3.50 up	\$3.00 up		
Windsor, Ont.	Suites—\$6.00 to \$8.00 Daily						
Palmetto	331	\$2.50 up		\$4.00 up		\$4.00 up	
John R. & Hancock							
Seward	561	\$2.50 up		\$3.50 up			
59 Seward Ave.	Suites—\$50 up monthly						
Statler	1000	\$2.50 up		\$4.50 up		\$5.00 up	
Grand Circus Park							
Tuller	800	\$2.00 up		\$3.50 up			
Park & Adams							
Wardell	627	\$3.00 up		\$4.00 up		\$4.00 up	
Kirby at Woodward	Suites—\$65 up monthly						
Webster Hall	800	\$2.00 up	\$1.25 up	\$3.00 up	\$2.00 up	\$3.00 up	
111 Putnam							
Whittier	816	\$3.00 up		\$5.00 up		\$5.00 up	
400 Burns Drive	Suites—\$65 up monthly						
Wolverine	500	\$2.00 up		\$3.00 up		\$4.50 up	
Witherell at Elizabeth							
Priscilla Inn	135	\$1.00 up		\$1.50 up			
2916 Cass Ave.		(For Women Only)					
Prince Edward	250	\$2.50 up		\$4.50 up		\$5.00 up	
Windsor, Ont.							

COUNTY SOCIETIES

EATON COUNTY

The Eaton County Medical Society held its regular June meeting at the Corne's Tavern, Charlotte, on June 25, 1936. Following the dinner, the meeting was at once turned over to Dr. Wm. J. Butler of Grand Rapids, who addressed the society on the subject, "Office Management of Genito-Urinary Disorders."

Dr. Butler's talk was of great interest and value to the general practitioners who made up his audience. He emphasized and described in detail those procedures which can be carried out in the office and which do disclose very significant information when so used. Dr. Butler dwelt on the newer emphasis which is being placed on the hydrogen ion concentration of the urine in the treatment of urinary tract infections. Acidification is produced by means of ammonium carbonate or chloride and the urine tested by the indicator chlorphenol. Recently a new indicator paper nitrazine has been placed on the market and through its use the degree of urinary acidification can be very accurately estimated.

The speaker described in detail the routine treatment of acute and chronic gonorrheal infection in the male and demonstrated various syringes and instruments which he has found particularly valuable in his own practice. In response to a question offered by one of the audience, Dr. Butler discussed very fully the diagnosis and treatment of the so-called "cystitis" seen so frequently in elderly women with the very distressing symptoms of frequency, dysuria and sometimes strangury. In this connection, the features of greatest interest and importance were the occasional findings of chronic urethritis, urethral stricture, habit bladder and Hunner's ulcer with markedly decreased urinary bladder capacity and irritation. This latter condition is diagnosed by cystoscopic examination and treated by means of urethral dilatation and bladder dilatation. Often it is necessary to fulgurate the ulcer.

Dr. Butler's paper was ably discussed by Dr. L. G. Sevensen of Charlotte and Dr. A. G. Sheets of Eaton Rapids.

A short business meeting was held at which it was decided that this society would hold its next meeting on September 17, 1936, so as not to conflict with the state meeting in Detroit.

T. WILENSKY, M.D.,
Secretary.

JACKSON COUNTY

The May meeting was called to order by the President, Dr. Dengler, May 19. Dr. Alter reported on the immunization question, explaining that \$2,500 was found to be necessary for this work in the city which desired to be included in the program but that none of the commissioners or supervisors would act on it until after the elections. No action has been taken up to this date and the next meeting will be too late because schools will be closed before the work can be started even if they vote favorably on the matter.

The report of the treasurer was given by Dr. Bullen, there being \$64.80 in a savings and loan company, \$268.94 cash on hand and the auxiliary needed \$13.37 to help them in the cancer lecture instead of the \$20 awarded for that purpose.

It was announced that there would be no meeting in September due to the State Medical Society meeting in Detroit, September 21, 22, 23 and 24. The next regular meeting will therefore be October 20, 1936.

AUGUST, 1936

A letter was received from the state secretary in regard to holding a post-graduate conference for the benefit of Ingham and Jackson counties. This letter was read with the added information that Dr. E. I. Carr of Lansing had called the day of the meeting, asking that we appoint a committee to confer with one from Ingham county that was to be appointed that night. The idea was agreeable to all those present and this is to be taken care of in the fall, the committee to be appointed later.

Dr. Dengler reviewed in brief the discussion and the decision of the board of directors with regard to the minimum fee bill controversy. He stated that this was the opening gun of a campaign in an attempt to get a little better coöperation locally in the adherence to this bill. The committee is as follows:

- Phil Riley for the general practitioner.
- C. Corley for the internists.
- D. F. Kudner for the surgeons.
- E. O. Leahy for the OOO specialty.
- F. Van Schoick for the pediatrics.
- J. M. Edmonds for the west half of the county.
- C. W. Schepeler for the east half of the county.

Dr. H. A. Brown, president of the Academy, asked that the men look back over their books for the past few months and be ready within the next week or so to state whether or not cases that come under the new county arrangement had been benefited and if so, what proportion had been helped. The Academy has done some very outstanding work so far in 1936 and the fall season will find them well along into further improvements for the benefit of all concerned.

Dr. E. H. Corley, speaking for the auditing committee, again warned the men that it would be necessary to get the o. k. from Mr. Scarborough for the additional ten-day periods in the hospital on all patients. There would be no payments for medical services rendered in any hospital during an unauthorized period.

The meeting was then turned over to Dr. Henry Balconi, chairman of the evening, who introduced his brother-in-law, Dr. Ivan B. Taylor, instructor in anesthesia at the University of Wisconsin Medical School. Dr. Taylor spoke on "Oxygen therapy with special consideration of administration by the nasopharyngeal catheter." This address was accompanied by lantern slides and a movie, the latter illustrating the technique of the use of this catheter with statistics proving the amount of oxygen delivered at the various rates of speed.

He reviewed the history of the use of oxygen in connection with anesthesia.

Quite a number of questions were asked by the audience and these were answered in detail by Dr. Taylor.

The meeting then adjourned.

H. W. PORTER, M.D., *Secretary*

MANISTEE COUNTY

The Manistee County Medical Society, at the meeting of May 14, decided to take one afternoon off, each week. A rotation list has been formulated, and certain ones remain on call for emergency. This list is posted at the Hospital, and the newspaper notice tells the public to call the Hospital, and a doctor will be provided. The rest of the physicians can go out of town as they wish.

Visitors from the outside were:

Bay City—Dr. L. Fernald Foster and Dr. P. R. Urmston; Ann Arbor—Mr. Clair Gates; Muskegon—Dr. R. H. Holmes; Frankfort—Dr. Trautman; Traverse City—Drs. Kyselka, Osterline, Swartz, Murphy, Zimmerman and Boushong, Judge of Probate Pratt, Superintendent of Poor E. Nickerson and C. Bracken; Ludington—Dr. C. Paucktis, Pro-

WOMAN'S AUXILIARY

bate Judge Owen J. Gavigan, and Superintendent of Poor Madison; Luther—Dr. G. H. Wood and Dr. Bertha Wood; Manistee—Probate Judge Charles Dovel.

C. L. GRANT, M.D., *Secretary.*

SAGINAW COUNTY

At the special meeting of the Medical Society held at St. Mary's Hospital, June 17, the Medical Filter Committee reported on the work done during the past five months in the examination of afflicted children. This report showed that three-fourths of the cases appearing before them had been turned down for State aid, and only those were approved who impressed the Board as being of an emergency nature. *The large group of unapproved cases were advised to return to their family physician for further advice.*

The fact was pointed out that many of these unapproved cases do have physical defects such as septic tonsils, et cetera, which may lead to further trouble in the future and that in the interest of good preventive medicine such defects really should be taken care of.

To bring about such corrections and at the same time to preserve the desired physician-patient relationship the following plan of the Filter Committee was approved and the Committee instructed to bring the matter to the attention of the Medical Society membership. The plan outlined below has the approval of both the Poor Commissioner, Mr. Hauffe, and Public Health officials, and the fullest cooperation of the Medical Society is desired.

The Plan

1. Only those cases will be examined by the Filter Committee who have first been approved by the Poor Commissioner's office as entitled to aid.

2. In dealing with the large group of cases who are not approved for State aid, the Filter Committee will furnish the applicant with a note to the family physician recommending such person as deserving of "special financial consideration." The family physician may then talk the matter over and arrange for the work on either a partial or deferred payment plan. In tonsil cases, which is by far the largest group, the hospital will accept \$8.00 on a cash basis. It would thus seem that almost every family could arrange to raise that amount, together with some payment for the physician. The family doctor will thus serve as his own social service agent, the parent will be able to get his child's defects corrected at a price he can afford to pay, the individual will be taught to be self supporting and the much desired physician-patient relationship will not be disturbed. The patient or parent should understand that his family doctor is doing this as a special favor because the physician believes his patient to be deserving of assistance.

3. It will be the policy of the Filter Committee to refer all unapproved cases back to the family physician. If the family physician is not prepared to do the surgery himself, it will greatly facilitate matters if he will get in touch with the surgeon and be of every possible assistance in bringing about a satisfactory arrangement.

4. In dealing with such cases it is trusted that the physician will handle them with tact and special consideration and in every way possible contribute to the success of the plan.

CLARENCE E. TOSHACH, M.D., *President.*
W. K. ANDERSON, M.D., *Secretary.*

WOMAN'S AUXILIARY

MRS. A. M. GIDDINGS, President, 22 Riverview Ave., Battle Creek

MRS. KENNETH LOWE, Secretary-Treasurer, 107 Elizabeth St., Battle Creek

MRS. L. C. HARVIE, Press Chairman, 341 Brockway Place, Saginaw

Michigan State Medical Society Makes Preparations for Hobby Exhibit

The Auxiliary to the Wayne County Medical Society is making extensive preparations for a "Hobby Exhibition" to be held in conjunction with the Michigan State Medical Convention which will meet in Detroit from September 21 to 24 inclusive. This exhibit will be displayed in the Washington Room at the Book-Cadillac Hotel adjoining the rooms where the various technical and scientific exhibits will be displayed.

According to the chairman the word "Hobby" is used for want of a better one. A number of exhibits have already been promised and some of these vie with museum pieces, as they are really valuable collections. As numerous physicians and their families DO things besides COLLECT things the word "HOBBY" is used, as it has a broader meaning.

This exhibition is open to all members of the Michigan State Medical Society and their immediate families.

Entry blanks (or facsimile) should be filled in and sent to Mrs. Milton D. Vokes, 444 East Grand Boulevard, Detroit, Michigan, as soon as possible. Entry blanks returned by August 10, 1936, will be published in the JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY for September. Entries close September 10, 1936.

An entry stub or facsimile must accompany each entry and should be addressed to "Hobby Exhibition," Michigan State Medical Society, Washington Room of Book-Cadillac Hotel, Detroit, Michigan, Care of John F. Ivory Company. The closing date for receiving articles is Sept. 18, 1936.

No entry fees will be charged.

Every precaution for the protection of exhibits will be taken; however, valuable collections should be insured as no responsibility will be assumed for loss or injury.

Articles will be displayed to their best advantage by experienced men.

Exhibitors are prohibited from removing any of their exhibits during or at the close of the convention.

Articles will be returned on September 25. Owners who would like to take their exhibits with them may do so on the morning of September 25 by presenting identification and leaving a receipt.

Physicians in Wayne County are interested and it is hoped that every county in Michigan will be well represented and that this will be one of the most outstanding affairs ever put on by the profession.

Say It Again

Attorney: "Now sir, did you, or did you not, on the date in question, or at any other time, previously or subsequently, say or even intimate to the defendant or anyone else, alone or with anyone, whether friend or mere acquaintance, or, in fact, a stranger, that the statement imputed to you, whether just or unjust, and denied by the plaintiff, was a matter of no moment or otherwise? Answer me, yes or no."

Witness: "Yes or no what?"—Anon.

MICHIGAN'S DEPARTMENT OF HEALTH

C. C. SLEMONS, M.D., Dr.P.H., Commissioner
LANSING, MICHIGAN

Pneumonia Research Grant

Dr. C. C. Slemons, state health commissioner, has announced the receipt of a grant of \$50,400 from the Commonwealth Fund of New York which will finance a three-year program to be undertaken in the laboratories of the Michigan Department of Health to improve the therapeutics in pneumonia and lower the cost of producing antipneumococcic sera.

The research will be carried out under the direction of Dr. C. C. Young, director of laboratories. Dr. Young stated that antipneumonia serum has already proved an effective agent in reducing death rates from 25 to 40 per cent in Type I and Type II pneumonia, the types most prevalent in this state, in experiments conducted by the Massachusetts Department of Health under the auspices of the Commonwealth Fund. The prohibitive cost of this treatment, however, has not permitted its wide usage. Dr. Young believed that this could be reduced to such an extent that eventually state-wide free distribution to physicians would be possible.

That pneumonia is causing considerable alarm in view of the increase during the past two years is attested by figures prepared by Dr. W. J. V. Deacon, Director of the Bureau of Records and Statistics, Michigan Department of Health:

"In 1933 there were 2,756 deaths from pneumonia, whereas in 1934 there were 3,466. This is an increase of 710 deaths, equivalent to about 26 per cent of the total deaths. This is the highest figure recorded since 1929 when 4,216 deaths were recorded, but in 1929 the early months in the year showed a sharp increase in the incidence of influenza which has always, in this district, been accompanied by a high pneumonia death rate. In 1934 there was no evidence of an increase of influenza to account for the increase in the virulence of pneumonia for that year. In 1935, there was a further raise in the first eleven months showing 3,368 deaths as compared to 3,132 deaths for the first eleven months of 1934. This was an increase of about 7.5 per cent. Figures available, but not yet compiled, show that the increase was continuous during the early part of 1936."

The manufacture of antipneumococcic sera has been carried on in the department laboratories since July 1, 1935, when the legislature appropriated \$10,000 a year for two years of research. Sixty pneumonia typing stations have already been established, and it is planned to increase this number to one hundred. Antipneumococcic sera will be distributed by late autumn, it is planned, from typing stations to physicians only after typing has been done so that specific type serum can be dispensed. Dr. Young expressed the conviction that state-wide free distribution would be under way by next spring.

Clinical studies will be carried on throughout the state and intensively in the Detroit Receiving Hospital. The use of new therapeutic agents and of antibody for other types than I and II will be in the Detroit Receiving Hospital on an alternate treated and untreated case sequence. The most important part of the clinical phase of the study will be the collection and analysis of case reports.

While several channels of research are open, Dr. Young declared that special effort would be made to improve the antibody by perfecting methods for the immunization of horses, and by an intensive study of the chemical nature of pneumococcal anti-

body looking toward the removal of the chill fraction, a higher concentration of antibody sera, the purification of antibody by means of bacterial enzymes, improved methods for testing the potency of therapeutic antipneumococcic serum, and the development of serums for pneumococci of types other than I and II.

Only Massachusetts and New York, in addition to Michigan, produce anti-pneumonia sera in state laboratories at present. The Commonwealth grant will be the first received by the Michigan laboratories for pure scientific research.

Current Deaths for First Four Months of 1936

Total deaths in Michigan for the first four months of 1936 increased by 475 over the corresponding period for last year with decided increases in deaths from pneumonia, heart disease and infant diarrhea, according to statistics released by Dr. C. C. Slemons, commissioner of health. Deaths totaled 19,048 for that period compared with 27,576 births. There was a decrease of 725 births over 1935.

Pneumonia, replacing cancer as the second major cause of death, continued its alarming rise of the past two years with 2,079 deaths already recorded, an increase of 175 deaths. Pneumonia deaths showed a 24 per cent increase in 1934, jumped an additional 7.5 per cent last year, and indications are that this year will furnish a further increase. The \$50,400 pneumonia research grant to the Michigan Department of Health for the development of practical, effective anti-pneumonia serum will be especially appropriate in view of this high incidence.

There were 1,607 deaths of children under one year of age which is equivalent to an infant mortality rate of 58.2 per 1,000 births for the four months. A rate of 47.7 prevailed in 1935.

Aside from premature birth, which is the highest single cause of infant deaths, the respiratory and diarrheal diseases are both high and the increased incidence of these diseases accounts in a large measure for this increase.

Diarrhea and enteritis deaths of infants under two years of age exceeded the figures for 1935. While the numbers in themselves are not large, they do indicate a trend coming at the season of the year when the incidence of the disease is not usually high. There were 94 deaths for the first four months compared with 62 last year. These diseases reach their peak usually during the hot summer months, and are best governed by care in control of the milk supply and environmental factors.

Heart disease, showing a total of 3,788 deaths, continued to be the leading cause of death, with an increase of 353 over 1935. Cancer continued in third place with 1,772 deaths. Deaths from heart disease, pneumonia, cancer, apoplexy and nephritis equaled more than half of the total recorded for all causes.

Automobile deaths for the first four months totaled 425; suicides, 207; homicides, 51; accidents exclusive of automobile, 706; tuberculosis, 681; diabetes, 459; puerperal causes, 162; diphtheria, 11; and typhoid fever, 7.

Look Out for the Uncommon Communicable Diseases

Certain of the communicable diseases either have never become very prevalent or the incidence has been so reduced that the number of cases in the state is relatively small and a physician in general practice seldom if ever sees a case. A pin map in the office of the Michigan Department of Health shows the incidence of some diseases which fall in

this group. The diseases, together with the number of cases reported for the year 1935, are as follows:

Amebic Dysentery	40
Epidemic Encephalitis	31
Malaria	82
Meningococcus Meningitis	113
Ophthalmia	12
Poliomyelitis	618
Smallpox	16
Trachoma	14
Trichina	23
Tularemia	11
Undulant Fever	73

To this group might be added typhoid and diphtheria inasmuch as the number of cases of typhoid in 1935 was 355 and the number of cases of diphtheria was 645. This means that about one doctor in ten, or less, had the opportunity of seeing a case, with some physicians, of course, seeing several, especially where several cases happened to occur in one family. Physicians generally should be reminded that all of these diseases are among those which should be reported promptly to the local health officer.

But more to the point—we suggest that physicians be particularly on the alert to avoid overlooking diagnoses. The more rare a disease may be the more likely is the diagnosis to be overlooked.

There is no reason at present to anticipate a "big year" in poliomyelitis. However, this is the season when prevalence is greatest. Last year the number of cases reported was considerably above the average. Many cases were diagnosed and reported in which there never was evidence of paralysis. No doubt this may also mean that there is an increase in the number of cases improperly diagnosed as poliomyelitis. Nevertheless, a greater proportion of nonparalytic cases among those reported indicates a greater alertness and understanding on the part of physicians.

Attention was called, through this column some months ago, to the increased prevalence of meningococcal meningitis noted through the United States for a period of more than one year. For the first six months of 1936 the number of cases was about 50 per cent more than for the same period in 1935. However, recently the incidence has been rather stationary or perhaps slightly on the decline.

A disease of which there is still a lesser incidence is epidemic encephalitis. Although Type A and Type B virus causing epidemic encephalitis have already been recognized, in the usual sporadic case it is not possible to definitely diagnose the case according to type. The three diseases, poliomyelitis, meningitis and encephalitis are sometimes confused in diagnoses, although with proper clinical and laboratory observations and examinations there should be little difficulty in most cases.

The smallpox incidence is low throughout the United States, but the especially low incidence in Michigan is remarkable. It is also worthy of note that few of the cases reported as smallpox are typical in clinical and epidemiological aspects.

The incidence of amebic dysentery has "leveled off" during the last two years since the outbreak originating in Chicago at the time of the World's Fair. No doubt there are many cases of this disease in which the diagnosis is missed. A persistent diarrhea with blood and mucus in the stools should always bring up the question of amebiasis.

Malaria is perhaps more common in Michigan than is usually considered by most physicians. It cannot be said that all cases are imported even though foci of infection are usually cases coming from southern areas. In Michigan the quadrimaculatis mosquito does transmit malaria from one individual to another.

Tularemia first came into prominence several

years ago. For a while it was thought and feared that this disease was on the increase, but although it has been brought to the attention of the medical profession, the number of reported cases has not increased during the last few years. The few cases which are reported usually come to light during the hunting season.

Although more cases of undulant fever have been diagnosed and reported in the past three or four years than at any time previous, we do not consider that this represents any real increase in incidence but rather a better diagnosing and reporting.

Although only 23 cases of trichina were reported during 1935, there has occurred in one outbreak in a northern community of the state since January 1, 1936, a total of 32 cases. This outbreak was referred to in the May issue of this JOURNAL. The gastro-intestinal symptoms which may first appear in these cases may furnish little clue as to diagnosis, but after the parasite has become encysted in the muscles, muscular pain and the swelling which occur at various parts of the body should always arouse the alert physician to the possibility of trichina.

The very low incidence of blindness in state institutions and elsewhere which can possibly be attributed to gonorrheal infection at birth as a cause, is convincing evidence of the value of silver nitrate prophylaxis in the eyes of the newborn. Not all irritations of the conjunctiva in infants are due to the gonococcus by any means, but the physician, even though he has used silver nitrate, should always consider the possibility of gonorrheal infection whenever conjunctivitis occurs in a baby.

Trachoma, another infectious and reportable disease of the eye or conjunctiva is, according to the reported cases, about as rare as ophthalmia neonatorum. A number of cases have occurred among Indians. Some ophthalmologists are of the opinion that this disease is much more common than is generally recognized. The importance of recognizing promptly the diagnosis in cases of diphtheria has been stressed for many years. Perhaps it needs to be stressed again considering the low incidence and the seldomness of any physician seeing a case.

The typhoid fever season is on hand. Unfortunately, the average case is not recognized until after two weeks from onset during which time there usually has been no care at all to prevent spread of infection. Although a delay of this length of time may be excusable in some cases, yet continued failure to recognize the typical typhoid case during the three or four weeks of illness is not excusable. The disease may also be classified as rare. Even more to be censured is the failure to report the case promptly to the local health officer so that proper steps may be taken to prevent the further spread of infection.

Northern Michigan Tuberculosis Sanatorium at Gaylord

Engineers from the State Department of Health have started staking out the buildings at the new State Sanatorium at Gaylord and we expect work will start on the construction within a few days.

The liner quivered from stem to stern, and then with a harsh grating sound it came to a full stop.

A man in a long, flowing white nightshirt appeared from a cabin and dashed up to a steward. "What's happened?" he shouted. "Have we struck an iceberg? Shall I get into my lifebelt? Won't you lower the boats?"

"Too late," the steward answered. "We've done all we can for you, and you'll have to look out for yourself now. You see, we've just tied up in dock."—Anon.

GENERAL NEWS AND ANNOUNCEMENTS

The One Hundred Per Cent Club of the Michigan State Medical Society

composed of county medical societies which have paid dues in full for each and every member of the county and state medical societies, now totals twenty-three societies:

1. Alpena County Medical Society
2. Eaton County Medical Society
3. Gogebic County Medical Society
4. Grand Traverse-Leelanau-Benzie Medical Society
5. Hillsdale County Medical Society
6. Ingham County Medical Society
7. Lenawee County Medical Society
8. Luce County Medical Society
9. Manistee County Medical Society
10. Mecosta-Osceola County Medical Society
11. Midland County Medical Society
12. Muskegon County Medical Society
13. Newaygo County Medical Society
14. Northern Michigan Medical Society
15. Oceana County Medical Society
16. Ontonagon County Medical Society
17. Ottawa County Medical Society
18. Saginaw County Medical Society
19. Saint Clair County Medical Society
20. Schoolcraft County Medical Society
21. Shiawassee County Medical Society
22. Tuscola County Medical Society
23. O. M. C. O. R. O. Medical Society

Medical History of Michigan. Two volumes. Price reduced to \$5.00 for both volumes. Write the Executive Office, 2020 Olds Tower, Lansing.

* * *

Dr. C. C. Slemons, Health Commissioner of the State of Michigan, was honored in Vancouver on June 26 by election to the Executive Committee of the State Provincial Health Authorities. Congratulations!

* * *

Opportunity for a general practitioner in Charlevoix County. Excellent opening, as a physician with a good practice is going into a specialty. For details, contact the Executive Office, 2020 Olds Tower, Lansing.

* * *

The Wayne County Medical Society Club rooms will be available to doctors attending the seventy-first annual meeting of the Michigan State Medical Society, September 21-24. There will be ample parking facilities within a stone's throw of the club house, 4421 Woodward Avenue, corner of Canfield.

* * *

A Delegate of the Michigan State Medical Society is eligible to any elective office in the Society, according to the ruling of the House of Delegates at its 1935 meeting. This was published in *THE JOURNAL*, Michigan State Medical Society, pages 735-736, November, 1935, issue.

* * *

The Wayne County Medical Society's Seventh Annual Golf Tournament will be held at Birmingham Golf Club on Wednesday, August 26, 1936. This event usually attracts about 250 golfers, and is a splendid social gathering of medical men. Wm.

J. Burns, Executive Secretary of the Michigan State Medical Society, has been invited to be Toastmaster.

* * *

Public Invited: The 125 Exhibits at the Detroit Annual Meeting of the Michigan State Medical Society will be open to the public on Tuesday afternoon, September 22, according to decision of Executive Committee of The Council at its meeting of July 1. These Scientific and Technical Exhibits carry much information and medical instruction, in which the public is tremendously interested.

* * *

The Brochure of the Michigan State Medical Society, "Who Wants Socialized or State Medicine?" has been received from the printer. A copy will be sent to every member of the Society, and to every school, library, Y. M. C. A., Y. W. C. A., civic organization, women's club. If you desire a copy to be sent to any office holder or citizen in your community, merely drop a postal to your Executive Office, 2020 Olds Tower, Lansing.

* * *

Who are the presidents and secretaries of the Michigan alumni associations of:

1. Phi Rho Sigma Fraternity?
2. Nu Sigma Nu Fraternity?
3. Omega Upsilon Phi Fraternity?
4. Theta Kappa Psi Fraternity?
5. Phi Alpha Sigma Fraternity?
6. Phi Chi Fraternity?

This information will be appreciated if sent to the Executive Office of the Michigan State Medical Society, 2020 Olds Tower, Lansing.

* * *

Gratuitous Services: Article 25 of the Rules Governing Gratuitous Medical Services in Hospitals, Clinics and Community Projects and Their Relation to Medical Practice, adopted by the Des Moines (Polk County) Medical Society, Iowa, on June 23, 1936, states that:

"Each member of the Des Moines Academy of Medicine and Polk County Medical Society shall submit for review by the Board of Censors of the Society a list of all those hospitals, out-patient departments, clinics and organizations to which he gives gratuitous medical service."

* * *

By Badge: Admissions to the General Sessions at the 71st Annual Meeting of the Michigan State Medical Society, Book-Cadillac Hotel, Detroit, September 21 to 24, 1936, will be by badge only.

This ruling is made to protect members of the Michigan State Medical Society, who otherwise might be crowded out by others who wish to attend the various functions of the meeting. This rule will apply also to the Smoker, planned by the Wayne County Medical Society for Tuesday, September 22, 8:00 p. m. Monitors will be stationed at all doors to see that this rule is carried out.

* * *

The Annual Meetings of the Michigan State Medical Society during the last ten years were held in numerous communities of the state:

- 1926—Lansing
- 1927—Mackinac Island
- 1928—Detroit
- 1929—Jackson
- 1930—Benton Harbor
- 1931—Pontiac
- 1932—Kalamazoo
- 1933—Grand Rapids
- 1934—Battle Creek
- 1935—Sault Ste. Marie
- 1936—Detroit

GENERAL NEWS AND ANNOUNCEMENTS

Coming events cast their shadows:

August 15, 1936—First day a voter may make application for Absent Voters Primary Ballot.

August 26, 1936—Last day for Registration prior to General Primary Election.

September 15, 1936—General Primary Election.

October 14, 1936—Last day for Registration prior to General November Election.

November 3, 1936—General November Election. (Two amendments to the State Constitution to be voted on. Joint Res. 2 and 3, P. A. 1935; and any other amendments that may be initiated.)

January, 1937—Legislature convenes in Regular Session. (Membership: Senate—32 members; House—100 members.)

* * *

"We look forward to the annual meeting of the Michigan State Medical Society in September as we understand that it is one of the best state meetings, and in Detroit the attendance should be excellent."

This came from one of the exhibitors located in Rochester, New York, who will have two booths at the 71st Annual Convention and Exhibition of the Michigan State Medical Society in Detroit, September 21, 22, 23 and 24, 1936.

One hundred twenty-five (125) Scientific and Technical Exhibits will be gathered together for the information and delectation of the members who will attend this meeting. It is estimated that the registration will be 2,000 and over.

Better write for your hotel reservation now. One hotel is sold out.

* * *

Dr. James Tate Mason of Seattle, president of the American Medical Association, died June 20, 1936, of endocarditis with multiple emboli at the age of fifty-four. Dr. Mason was born in Virginia and graduated from the University of Virginia Department of Medicine, in 1905. He was made president-elect of the American Medical Association at the annual meeting in 1935. His physical condition prevented him from attending the 1936 session at Kansas City. However, he was made president in absentia. Dr. Mason was a member of the House of Delegates of the American Medical Association from 1928 to 1934. He was secretary of the division on Surgery, General and Abdominal, from 1923 to 1926, when he was elected chairman, serving a year in that capacity. He will be succeeded by the vice president, Dr. C. G. Heyd.

* * *

This is no fairy tale: A certain member, following the suggestion made in the July issue of *THE JOURNAL*, sent to the State Society's Executive Office a list of concerns whose representatives call upon him every month. Some of these firms, whose products have the approval of the American Medical Association Council on Pharmacy and Chemistry, were invited to exhibit at the Detroit Meeting of the Michigan State Medical Society in September. Result: two spaces were sold.

This physician deserves the thanks of the entire membership for his very practical interest in the success of the Society.

Doctor, in your contacts with detail men, please mention the Exhibit of the Michigan State Medical Society, Detroit Session, September, 1936; also men-

tion "The Detroit Number" of *THE JOURNAL*—September issue, which will be a souvenir program of your Annual Meeting.

* * *

The Golfers of the Michigan State Medical Society are invited for invitational golf at the Detroit Golf Club, Tuesday, September 22, on the occasion of the Annual Convention of the M.S.M.S. The Detroit Golf Club is at Ponchartrain Drive, just opposite Palmer Woods, between the Six and Seven Mile Roads. There are ample parking facilities for golfers driving their own cars.

Pay the regular green fees of \$1.50 and buy coupon books at the Club to pay for green fees, dinners, caddies, etc. Any coupons left over will be refunded at the Cashier's office before leaving the club. Guests cannot pay with cash, only with coupon books or upon signature of a member of the Club.

The dinner will be \$1.65, including the service charge, and will be served at 6:30 promptly, so the men can get back to the Book-Cadillac for the "smoker" which begins at 8 o'clock. Buses will be arranged for the men not driving their own cars. The fee is nominal.

Buses will leave from both the Book-Cadillac and the Statler for the Detroit Golf Club, and will be at the Golf Club promptly at 7:30 to return the men to the Book-Cadillac. Suitable prizes will be presented during the dinner. You are invited!

C. D. BROOKS, M.D.
Chairman Golf Committee

* * *

Afflicted child commitments for the month of June, 1936, totaled 903, of which 259 were committed to the University Hospital. This compares with 1325 commitments in May, 1936, of which 262 were sent to the University Hospital; and to 1200 in April, 1936, of which 311 were University Hospital patients.

Crippled child commitments for June were 256, of which 93 went to the University Hospital. In May, the total of crippled child commitments was 255, with 91 to the University Hospital; in April, the total was 243, with 102 going to the University Hospital.

The maximum total cost for physicians' fees for June, 1936, for cases in hospitals other than the University Hospital, would have been no more than \$28,210 (basing the average cost per case of both crippled and afflicted children at the figure of \$35). In May, 1936, on the same basis, the maximum total cost for physicians' fees would have been \$42,845. In April, 1936, the total would have been \$36,050.

These cost figures are all below the estimate of \$50,000 per month which was given to the Governor last March by the Chairman of the Michigan State Medical Society Subcommittee on Relief Medicine. The Filter System is working!

* * *

The University of Michigan and the Children's Fund of Michigan will hold a conference of the health profession at Marquette on August 19 and 20. This meeting will be preliminary to and in conjunction with the annual meeting of the Upper Peninsula Medical Society at Ishpeming, Michigan, on August 20 and 21. The joint program of the University of Michigan and the Children's Fund of Michigan is as follows:

OBITUARY

Wednesday, August 19, 1936
Marquette High School
2:00 P. M.

F. C. Bandy, M.D., Presiding

The Division of the Health Sciences at the University of Michigan—Dr. James D. Bruce, Ann Arbor Symposium. What Constitutes a Complete Health Service for the Community?

Medicine—Dr. Hugo A. Freund, Detroit
Nursing—Miss Louise Knapp, R.N., Prof. of Public Health Nursing, Wayne University
Pharmacy—Dr. Howard B. Lewis, Director of College of Pharmacy, University of Michigan
Dentistry—Dr. Paul Jeserich, Professor of Dentistry, University of Michigan
Public Health—Dr. John Sundwall, Director of the Division of Hygiene and Public Health, University of Michigan
Discussion

Wednesday Evening. Public Cordially Invited
Marquette High School Auditorium
7:30 P. M.

W. A. Manthei, M.D., Presiding

An Illustrated Lecture on the Present Knowledge of the Cause and Care of Cancer—Dr. Henry J. Van den Berg, Grand Rapids
Growing Up Mentally—Dr. Howard Y. McClusky, Associate Professor of Educational Psychology, University of Michigan

Thursday, August 20

Dentistry

Northern Michigan Children's Clinic. Amphitheatre

Some Aspects of a Full Denture Practice, including a Motion Picture of Immediate Denture Service. Lecture and Clinic—Dr. C. H. Jamieson, Detroit, Michigan

Practical Pedodontia for the General Practitioner. Lecture and Clinic—Dr. George E. Morgan, Milwaukee, Wisconsin

Etiology and Management of Chronic Arthritis—Dr. A. C. Curtis, Ann Arbor, Michigan

Thursday, August 20

Conference on Public Health and Nursing
Graveraet High School

Miss Elba Morse, Presiding

The Obstetrics Problem—Professor Norman F. Miller, University of Michigan Medical School, Ann Arbor

The Further Consideration of Community Health Services.

Panel Discussion. Miss Louise Knapp, Presiding
Professor John Sundwall

Dr. Clyde C. Slemons, State Commissioner of Health, Lansing

Professor Howard McClusky

Miss Marjorie Delavan, Director, Bureau of Education, State Department of Health, Lansing

AUGUST, 1936

OBITUARY

Dr. E. P. Mills

Dr. E. P. Mills of Highland Park died at the Highland Park General Hospital July 9, 1936. Dr. Mills was born on October 8, 1875. After attending the Detroit Business University, he entered the Detroit College of Medicine and graduated M.D. in 1898. Since that time, Dr. Mills had devoted his time to general practice. Dr. Mills will be missed from the Wayne County Medical Society where he was a constant attendant; always of a cheerful disposition, leaving the impression that he enjoyed life supremely, Dr. Mills could be depended upon to engineer any entertainment the society might undertake. He was a Knight Templar Mason, and also a member of the Moslem Shrine, which membership went to show his fraternal tendencies in a large way. Dr. Mills is survived by his wife, Minerva E.; one daughter, Lillian F.; and one son, Ellsworth P. Mills of Cleveland.

Dr. Daniel O. Donovan

Dr. Daniel O. Donovan died on July 13, 1936, his end being brought about by the excessive temperature that week. He was born in Chatham, Ontario, in 1853 and came to Detroit in 1881. His preliminary education was received in Chatham and Toronto. However, he graduated from the University of Michigan M.D. in 1876. He began practice in Manistee, but eventually came to Detroit. Dr. Donovan had practiced sixty years last June. He is survived by three daughters and one son, Dr. Daniel R. Donovan of Detroit.

THE DOCTOR'S LIBRARY

Acknowledgment of all books received will be made in this column and this will be deemed by us a full compensation to those sending them. A selection will be made for review, as expedient.

EXOPHTHALMIC GOITER AND ITS MEDICAL TREATMENT. By Israel Bram, M.D., Medical Director, Bram Institute for the Treatment of Goiter and other Diseases of the Ductless Glands, Upland, Pa.; Member of the Association for the Study of Internal Secretions, the American Association for the Study of Goiter, etc. With foreword by R. G. Hoskins, Ph.D., M.D., Director of Research, Memorial Foundation for Neuro-Endocrine Research, Harvard Medical School, Boston, Mass. 456 pages. Price, \$6.00. St. Louis: C. V. Mosby Co., 1936.

This is a rather pretentious volume of over 400 pages which details the author's personal experience with over 5,000 cases of exophthalmic goiter treated non-surgically. The book is essentially an attempt to justify non-surgical treatment of this incompletely understood disease, the first 170 pages of which are devoted to symptomatology. There is a short discussion of types and laboratory tests and the remainder of the book is devoted to management: general principles, local measures, drugs and psychotherapy. The last sixty-odd pages are devoted to an evaluation of treatment as measured by a follow-up of 2,600 cases, only 55 of which are sketchily summarized. This book constitutes an undue emphasis on medical management of exophthalmic goiter to the exclusion of thyroidectomy, which is still recognized generally as the most important single procedure in the treatment of this disease.

SYNOPSIS OF DISEASES OF THE HEART AND ARTERIES. By George R. Herrmann, M.D., Ph.D., Member Association of American Physicians, American Climatological and Clinical Association, American Society for Clinical Investigation, American Society for Experimental Biology and Medicine; Fellow American Association for the Advancement of Science, American College of Physicians, and the American Heart Association; Miembro Correspondiente Extranjero de la Sociedad Mexicana de Cardiología. 88 Text Illustrations and 3 Color Plates. Price, \$4.00. St. Louis: C. V. Mosby Co., 1936.

This is a work by George R. Herrmann, a graduate of the University of Michigan, and formerly associated with the medical faculty there, and now Professor of Clinical Medicine in the University of Texas. The book comprises 328 pages divided into 24 chapters. It is illustrated with 88 photographs, diagrams and other figures, and three color plates. The book is, frankly, an attempt to make information on cardiology available to him who runs. The work is carefully indexed and interspersed with outlines and there is more than usual emphasis on treatment and much of this material is in tabular form. The mechanics of disturbed physiology as the basis for symptomatology is clearly outlined. Particularly valuable is a chapter entitled, "The Classification of Diseases of the Heart," and the last chapter on "Peripheral Vascular Diseases" is one which should be read by every general practitioner. There are chapters on "Disturbances of Myocardial Function," on "Congestive Heart Failure," which is followed by a 13-page chapter on detailed treatment. There are chapters on "Anginal Heart Failure," "Coronary Thrombosis," "Sub-acute Bacterial Endocarditis," "Rheumatic Carditis," and the usual brief summary of the valvular diseases.

The book is pocket size and thoroughly sound from cover to cover; an excellent volume to keep on your handiest shelf.

FACTS ABOUT COMMERCIALLY CANNED FOODS.

A brochure prepared and copyrighted 1936 by the American Can Company. The educational material in this book is acceptable to the Committee on Foods of the American Medical Association. Booklet on request by writing the American Can Company, 230 Park Avenue, New York, New York.

Prepared primarily to inform the public, this booklet of 34 pages has information which will interest many physicians. The chapters on "Food in the Open Can" and "The 'Ptomaines'" are designed obviously for lay consumption, but the chapters on "Vitamins in Canned Foods" and "Canned Foods in Infant Nutrition" are well worthy of attention by the M.D. The material is well written, and the technical processes of canning and sterilization are explained in simple, readily understandable English. The treatise on Botulism is one that should be called to the attention of all patients.

Coronary Artery Disease in Women

Hyman Levy and Ernest P. Boas, New York (*Journal A. M. A.*, July 11, 1936), state that in women, especially those under the age of 50, coronary artery disease is unusual in the absence of diabetes or hypertension. Yet precordial pain simulating angina pectoris is a common symptom. Although experienced clinicians have been aware of this fact for years, it is overlooked again and again in daily practice and many mistaken diagnoses result. During the last seven years in an office practice representing largely patients referred for cardiovascular diagnosis, the authors have seen 1,672 women, 169 of whom had coronary artery disease. In the same period they saw 2,135 men, 1,059 of whom had coronary artery disease. The frequency is 4.9 times as great in men as in women. Of the 169 cases in women, 125 were associated with hypertension alone, twenty-five with both diabetes and hypertension, and six with diabetes alone. In only thirteen cases was there neither hypertension nor diabetes, and of these only five were in women under the age of 50. The clinical picture of true coronary artery disease as it occurs in women does not differ from the generally recognized form. The relative unusualness of coronary artery disease and the frequency of benign precordial pain in women should lead to great caution in the diagnosis of coronary artery disease in women in the absence of hypertension or diabetes. This applies as well to many women in the fifth decade of life with unstable blood pressures and transient rises to 160 or 170 millimeters of mercury. The fluctuating blood pressure level may be only one expression of the many vasomotor instabilities associated with the menopause and does not have the same significance as a maintained arterial hypertension. Even in the presence of hypertension in women, true angina pectoris is much less frequent than is benign precordial pain. However, coronary artery disease does occur at times in women with normal blood pressures who are free from diabetes, particularly in women over the age of 60 who have generalized arteriosclerosis. Isolated cases in young women in the absence of both hypertension and diabetes have been reported. Averbuck has pointed out that "when the clinical picture suggesting coronary artery thrombosis occurs in a female patient who has neither arterial hypertension nor diabetes, a pulmonary embolus should be suspected." Hypertension is not the cause of coronary disease but simply accelerates its development. The designation "hypertensive cardiovascular disease," so commonly employed to describe these disease states, is a poor term. It assumes a necessary and fundamental connection between the two disorders. Their true nature can best be discovered by studying uncomplicated coronary artery disease in men and uncomplicated arterial hypertension in women. These apparently represent "pure forms" of these two conditions.

OF MEDICAL AND SURGICAL INTEREST

Radiologic Investigation of Superior Maxillary Antrum

E. H. Shannon, Toronto, Ont. (*Journal A. M. A.*, Feb. 22, 1936), states that in 130 cases chronic maxillary sinusitis with more or less well marked mucosal thickening was the major observation. In 127 cases the diagnosis was confirmed. In eighteen cases of the 127, polyps of small size were found at operation which had not been seen roentgenographically. Three cases considered acute by roentgen examination were found to be of chronic type. Of 106 cases polypoid degeneration was reported as the outstanding feature and with subsequent operative confirmation. Four antrums in which polyps were reported were found to contain cysts. Of the 102 remaining, in two instances pus was reported to be present in quantity and was not evident to the surgeon; in four pus in quantity was found and had not been reported; in two cases polyps of a centimeter or more in diameter were removed when only mucosal thickenings had been reported. Thirty-eight cases were described as showing evidence of barely demonstrable osteitic reaction, with no definite mucosal thickening, pus or polyps present. They were considered as representing residual changes from an old infection not active at the time of examination. Of this group six contained one or more very small polyps, not visible preoperatively or on re-examination of the films. In twenty-two cases, frank empyema was reported and confirmed at operation. Of these, ten were reported by the surgeon to have contained polyps, the presence of which was entirely masked in the roentgenograms by the contained pus. A survey of the tabulated results of these cases indicates that the radiologic diagnosis of chronic maxillary sinusitis made on "plain" roentgenograms was essentially correct in almost every instance. The author believes that the presence of polyps in an antrum containing definite mucosal thickening, especially if an osteitic reaction is present, does not materially alter the clinical conduct of the case. In the thirty-eight cases of the 296 described as representing the end-result of an old healed infection, this may not apply. They form the borderline group, and it will be seen that, while definite evidence of disease was not lacking, a detailed description of the pathologic changes present was not accurate in six of thirty-eight antrums examined. In this group only a slight haziness was observed radiologically over the suspected antrum, with no definite pus or polyp formation evident. The periosteum in several instances was apparently thickened, while at operation the mucous membrane was found to be adherent; the bone bled readily and was hard to the curet. The author feels that the knowledge of the presence of even slight polypoid degeneration of the mucosa might influence treatment in such cases as indicating the probability of reinfection when healing was considered to have occurred. At present, he is studying the ethmoidal cells closely for a clue as to similar change occurring in that area, where it is more readily demonstrable. If doubt still exists an opaque medium may well be used to fill the antrum, by whatever method is preferred by the operator. The preliminary plain films will then establish the presence of minimal osteitic reaction; the iodized oil may reveal the slight associated polypoid degeneration of the mucous membrane.

Value of Atropine and Belladonna In Stomach Disorders

Walter A. Bastedo, New York (*Journal A. M. A.*, Jan. 11, 1936), declares that the action of atropine on the stomach is peripheral, but it is obtained only after the absorption of the drug. Maximal doses for man may be considered those that just produce undesirable by-effects. With the enormous doses possible in experimental animals, atropine may reduce and even abolish the secretion of gastric juice. In man the maximal possible doses tend to reduce the psychic phase and possibly the intestinal phase of gastric secretion and thereby to reduce the total secretion. They also tend to reduce the continuous interdigestive secretion for two or three hours, but not long enough to make atropine a satisfactory night dose in ulcer. In the chemical phase, doses large enough to cause toxic reactions may bring about a distinct reduction in the amount of secretion, though this is not a constant effect. The reduction in quantity may be accompanied by a reduction in the acid titer, but in many instances it is associated with a much smaller proportionate reduction in the total acid secreted, thereby making a more strongly acid solution in the stomach than normal. Doses that reduce the acid secretion also reduce the secretion of the protective mucin. The effect on the stomach secretion is short lived, one or two hours as a rule, while the undesirable toxic effects persist. In man, in a small proportion of the cases, the largest permissible doses may overcome hypertonus, hyperperistalsis and spasm in the body of the stomach; yet they may be harmful, in that they abolish the normal vagus reflexes which control motor hyperactivity. In pylorospasm, if the dose is large enough, those forms which are motivated by the vagus may be overcome, but not those motivated by the splanchnic nerves. In chronic ulcer the atrophic value of the vagus cannot be abolished with impunity, but, except for the evidence of Aschoff, it is not known to what extent atropine affects this. It is yet to be determined whether, as Palmer suggested, the appearance of side actions may be accepted as the indication that the stomach is being acted on, and their non-appearance the indication that the stomach is not affected. The minimal single doses that promise any effect on the stomach are 1 mg. (1/65 grain) of atropine sulfate by hypodermic injection, and 3 c.c. (45 minims) of tincture of belladonna or 75 mg. (1 1/6 grains) of the extract by mouth. In susceptible patients, doses much smaller than these produce the undesired side actions.

Use of X-rays in Pulmonary Tuberculosis From Point of View of Prognosis

Francis B. Trudeau, Saranac Lake, N. Y. (*Journal A. M. A.*, Feb. 22, 1936), devotes his discussion to the following points in relation to their effect on prognosis: extent of disease as based on the roentgen examination; character and types of shadows; absence or presence of cavities; behavior of cavities; increase or decrease of roentgen shadows; prognostic significance of fever versus roentgen shadows, fever versus comparative roentgen studies and râles versus roentgen shadows, and relapse in relation to comparative roentgen studies. In order to obtain some statistics on these various points he has selected groups of several hundred consecutive admissions to Trudeau Sanatorium, studied the roentgenograms

of these patients, and then followed the patients in each group for a period of years. The study indicates that: 1. The extent of involvement of the lung greatly influences the prognosis in pulmonary tuberculosis, the death rate being in direct proportion to the amount of disease. 2. The prognosis in the "exudative" type of disease is decidedly more unfavorable than in the "proliferative" type. 3. The presence of cavities nearly doubles the probability of death within five years. 4. Cavity cases showing improvement under treatment have approximately five times as favorable a prognosis as those in which the cavities become larger during sanatorium residence. 5. Patients whose comparative roentgen examinations are constantly favorable under sanatorium treatment have more than twice as good a chance of being well at the end of five years and only one fourth as great a chance of being dead as those who have increased roentgen shadows. 6. Increase in comparative roentgen studies suggests a prognosis about equally unfavorable with that indicated by the presence of fever. 7. Patients with both fever and increased roentgen shadows have six times as unfavorable an outlook as those who are free of fever and whose roentgen examinations show consistent improvement. 8. Increased comparative roentgen shadows are of much graver prognostic significance than increased physical signs (râles). 9. The yearly follow-up records of 600 patients show that the relation of "well," "relapsed but now well," "chronic," and "dead" is in direct ratio to the incidence of roentgen increases while they were under the author's care.

Etiology of Heart Disease, With Especial Reference to Present Status of Prevention of Heart Disease

Howard B. Sprague and Paul D. White, Boston (*Journal A. M. A.*, Nov. 2, 1935), state that Cabot attributed the four common types of heart disease to rheumatism, syphilis, hypertension and arteriosclerosis (the status and prevention of which are discussed separately), and these remain the causes of nine-tenths of the organic heart disease of the United States. In the remaining one-tenth are found such diverse types of heart affliction as congenital, thyroid, acute and subacute bacterial, diphtheritic and toxic heart disease, and the damage to the heart produced by pulmonic hypertension, anemia, trauma, systemic disease and neoplasms. While it is true that heart disease is now thought of in terms of etiology as one of the elements of the triad of diagnosis—etiologic, structural and functional—one must not be satisfied to confuse knowledge with nomenclature, since it must be admitted that in the four major types of heart disease the pathogenesis is obscure in more than 90 per cent. The causes of rheumatism, hypertension and arteriosclerosis are unproved and in this ignorance of the causes lies to date much of the failure of preventive medicine in heart disease. In the 10 per cent of heart disease with assorted etiology the possibility of prevention depends on the underlying conditions, many of which are remediable; but, except in goitrous districts with an abnormal incidence of thyroid heart disease, not one of these minor groups presents a public health problem of any great importance. On the other hand, the four major groups constitute a preponderant problem since they are responsible for two and a quarter times as many deaths as their nearest rival, cancer. Three of them—rheumatic, syphilitic and hypertensive—may eventually become amenable to preventive measures and even the fourth—arteriosclerotic—may be so controlled that it will cause serious damage only in the aged.

The Additive Effect of Calcium and Digitalis: Warning, With Report of Two Deaths

J. O. Bower and H. A. K. Mengle, Philadelphia (*Journal A. M. A.*, April 4, 1936), report two fatal cases following the intramuscular administration of digitalis and the intravenous injection of calcium gluconate chloride because of their conviction that there are very definite contraindications to the use of calcium intravenously. Several causative factors were suggestive in case 1: liver damage, autonomic instability, speed shock, and the synergistic action of calcium and digitalis. Although the liver at operation seemed soft and bled easily, at necropsy it was very flabby, and the liver function test showed 30 per cent retention, yet the pathologist's report hardly justifies classifying this case as a death due to hepatic insufficiency. Autonomic instability is a vague term and while there are undoubtedly instances in which death is due to some powerful stimulation of the autonomic nervous system, there is too great a tendency to ascribe catastrophes to some such vague generalization. Every one is to some degree either vagotonic or sympathicotonic, and even in cases of recognized pronounced instability some additional stimulus is required to produce a fatality. Physiologists and pharmacologists have long known that excess of calcium ions slows the heart rate and that large doses will stop the heart in systole. In an endeavor to confirm the results of others, the authors studied the effects of large but sublethal doses of calcium chloride, calcium gluconate and digalen, administered intravenously. Dogs from stock and others especially prepared were used. Fifteen per cent of the calculated lethal dose of calcium chloride or gluconate produced only a transient slowing of the pulse and a slight drop in blood pressure. When this dose was preceded by therapeutic doses of digalen, i. e., sufficient to produce changes in the pulse or blood pressure, definite toxic effects were obtained. Periods of asystole, extrasystoles, marked slowing of the pulse and fibrillation were observed. Following the administration of digalen, approximately 30 to 40 per cent of the calculated lethal dose of calcium gluconate was given. After a brief rise in blood pressure there was an abrupt and dramatic cessation of heart action and the blood pressure fell to zero. Similar results were obtained with calcium chloride. After administration of sufficient calcium ions to produce definite circulatory changes digalen in large doses gave no such results, and only when the full lethal dose of digalen was reached did the blood pressure fall and the circulation fail. Five dogs were especially prepared by subtotal hepatectomy to simulate liver damage in case 1. While these dogs were more sensitive to small doses of either calcium ions or digalen than normal dogs, it is questionable whether their general physical condition was not to blame, rather than especial sensitivity produced by liver damage. Even with administration of dextros, these animals live only a few days after operation. Six dogs received chloroform anesthesia, one-half hour for two successive days, as a preliminary preparation, to produce liver damage. The results did not differ essentially from those obtained in normal animals. The authors feel that the results of these experiments, in conjunction with the reports of other writers, justify the conclusion that the administration of calcium salts intravenously, following the administration of digitalis or one of its purified proprietary modifications, is a procedure of considerable hazard and may result in avoidable fatalities. They suggest that manufacturers of calcium gluconate or chloride should preface their literature with a warning relative to the additive effect of calcium and digitalis when given simultaneously.